ENGINEERING NEWS-RECORD

APRIL 21, 1960

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Georgia's James McCoy Oliver Dam, which went into service late in 1959, can produce some 255,000,000 kilowatt-hours of power a year—electricity equal to the needs of 65,000 average homes. This newest and most modern of the Georgia Power Company's hydro-electric generating stations has opened a new era of industrial development and economic growth for Columbus and the entire Chattahoochee Valley region.

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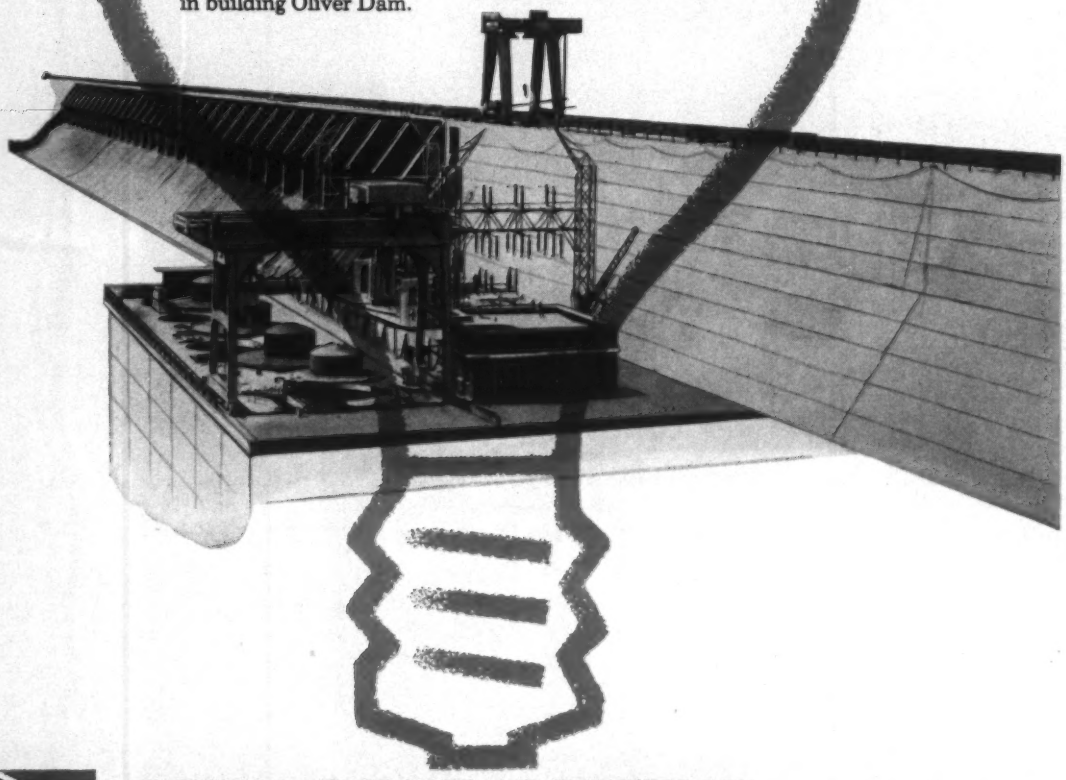

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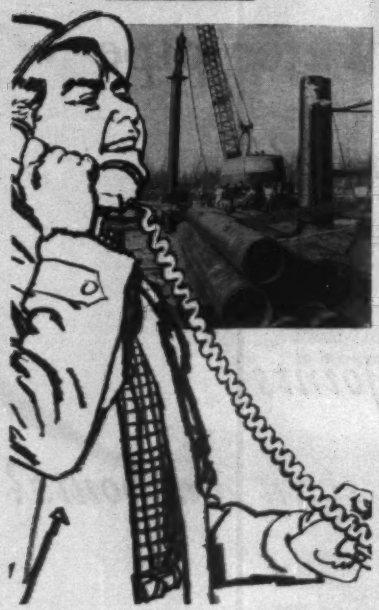

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- *Couples Quickly*
- *Seals Water-Tight*
- *Reduces Job Cost*

10° temperatures, deep trenches, and freezing water in the trenches didn't stop, or even appreciably slow down pipe-laying on the sanitary sewer project shown. One important reason why work could continue under these conditions was described by Tom Simich & Son, Contractors, of Cleveland, Ohio:

"Sub-freezing weather, and wet, sandy trench bottoms does not affect the coupling efficiency of "Uniflex" O-ring Gaskets. We are laying pipe *fast* on this job, in spite of the tough conditions."

The project is for the City of Parma, Ohio, and is engineered by Verne M. Clarke Engineering Co. of Parma, Ohio, Consultants. Approximately 8200 ft. of 27" and 30" reinforced Concrete Culvert Pipe with "Uniflex" O-ring Gaskets is being installed.

"Uniflex" Gaskets, made of either rubber or neoprene, form true compression seals as pipe is coupled, and withstand head pressures of 50 feet and above. Specify United States "Uniflex" Concrete Pipe for your projects, and be assured of tighter lines installed at lower cost. Details on request.

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SEE OUR CATALOG IN SWEET'S OR WRITE FOR COPY

B.F. Goodrich develops 2 new long-wear tire compounds

B.F. Goodrich Cut Protected and Heat Resistant compounds boost tire life, cut costs on heavy construction and earth-moving jobs

THE most costly tire-killers on construction projects are either rock cuts or heat build-up. A B.F.Goodrich research team went to work on the problem, tested and researched various compounds, then developed the first truly Cut Protected and Heat Resistant compounds on the market.

Cut Protected compound gives longer service on jobs where:
- Rock cutting, chipping and abrasive wear are severe.
- Round-trip hauls are short.
- Trucks travel at low speeds.

Heat Resistant compound defies heat build-up on jobs where:
- Haul roads are well maintained.
- Trucks travel at high speeds.
- Cutting and chipping are at a minimum.

Tests show these compounds outperform any others available today. Ask your B.F.Goodrich dealer about them—find out how they can save *you* money.

HERE'S UNRETOUCHED PROOF of how the new B.F.Goodrich Cut Protected compound wears longer. Both tires were in service at the same time on identical jobs under identical conditions. Yet the Cut Protected compound tire above has given *approximately 3 times more service* than the tire below. Note how little the Cut Protected tread is worn.

SCRAPER HAULS 35 TONS OF CLAY AND SAND to grade new Interstate Highway No. 1202-(1)-9 in Conecuh County, Ala. Equipment works 60 hours a week on stop-and-go runs of a mile or less. Here's a job for the new B.F.Goodrich Cut Protected compound. On long, high-speed hauls, you'd choose the new Heat Resistant compound.

More highway construction news from B.F. Goodrich ▶

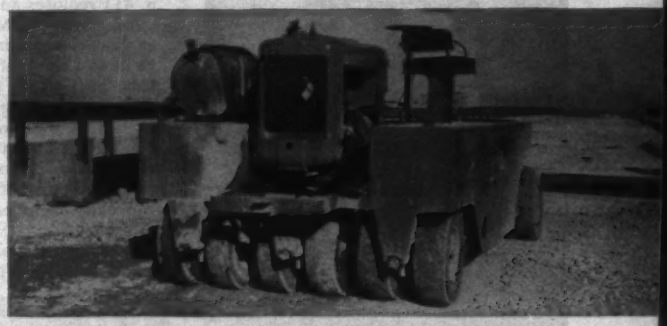
RUSHING HIGHWAY CONSTRUCTION near Lackland Field, this giant Killian-House scraper is loaded with 30 tons of earth. Tires are B.F.Goodrich Rock Service Tubeless, designed with massive double-chevron cleats for extra traction, forward or reverse. Rock Service tires are available in the new Cut Protected compound that defies rock cuts and snags, in the new Heat Resistant compound that withstands dangerous heat build-up, or in the Regular compound for normal service.

How long-wear B.F.Goodrich tires

HYDRAULIC DUMP TRUCK deposits asphalt to pave highway 25 miles southwest of San Antonio. Front tandem tires are B.F.Goodrich Power Express. Rear tandems are Traction Express on 4th retread. B.F.Goodrich FLEX-RITE NYLON cords withstand double the impact of ordinary materials, resist heat blowouts and flex breaks. That's one reason why Traction Express tires can be retreaded again and again.

B.F.GOODRICH ON-THE-JOB SERVICE helps contractors cut costs to a minimum. Servicemobile is equipped with all the latest power tools, including hydraulic cranes, bead jacks and pneumatic wrenches. B.F.Goodrich Tire Service Men handle any type tire on any type equipment, work quickly and efficiently. Best of all, B.F.Goodrich Tire Service Men are there when you need them.

6,000-GALLON WATERWAGON rolls on B.F.Goodrich Earth Mover tires. Note the unusual "button" tread. Hundreds of sharp edges bite into the ground to keep the tire from skidding or slipping. Yet the Earth Mover's wide tread keeps the tire on top of soft soil. Work stays on schedule.



HELPING COMPACT EARTH is the job of the 13 B.F.Goodrich smooth-tread tires on this road roller. Other Killian-House equipment includes 30 flat bed and water trucks, 10 scrapers, 15 maintainers, 30 pickups and 30 hydraulic dump trucks—all on B.F.Goodrich tires.

KILLIAN-HOUSE RELIES on B.F.Goodrich truck and trailer tires to move 200 amp. welding machine to equipment repair jobs. Altogether, this contractor uses nearly 800 B.F.Goodrich tires to help speed highway construction in Southwest Texas.

B.F.Goodrich Smileage!

keep highway construction on the go

KILLIAN-HOUSE, one of the biggest highway and bridge construction companies in Texas, operates out of headquarters in San Antonio—maintains three field offices with 2-way radio hook-up to help service jobs currently worth more than twelve million dollars.

Every day a fleet of 143 units goes to work on B.F.Goodrich tires—scrapers on Rock Service tires, dump trucks on the Traction Express, maintainers on Power Grader tires, water trailers on Super Traction tires, pickups on the Power Express—even company cars on B.F.Goodrich Life-Saver Tubeless tires.

Why this vote of confidence in B.F.Goodrich? "Because," says General Superintendent Glen Quick, "they are the best tires for the job. For example, we once got only 30,000 to 50,000 miles from truck tires. Costs were enormous. Now B.F.Goodrich Traction Express tires give us 60,000 to 90,000 miles, cutting our costs in half."

Why not have a talk with your B.F.Goodrich Smileage dealer. He has long-wear tires for every type of off-the-road work and tire service that keeps construction on the go. Look under Tires in the Yellow Pages of your phone book. *The B.F.Goodrich Company, Akron 18, Ohio.*

SPECIFY B.F.Goodrich Tubeless or tube-type tires when ordering new equipment

OFF-THE-ROAD TIRES BY B.F.Goodrich

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- **IGLOO** has an easy-to-clean round inside bottom
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When you order water coolers specify IGLOO

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IGLOO, world's No. 1 Water Cooler, is available in 2, 3, 5, 10 and 15 gallon sizes—23 models in all.

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MEMPHIS 18, TENN.

For Construction Consultants

SIR—I believe the letter by Edwin B. Law (ENR Jan. 7, p. 6) regarding my article on "Construction Consultants Needed?" (ENR Nov. 12, 1959, p. 41) requires an answer.

I agree with Mr. Law that a well-experienced general contractor would be one of the best construction consultants, and where the architect-engineer and the contractor can work together as a team, as is often true in private work, the ideal relationship can be reached. Here, there is no room for the independent construction consultant as no gap exists between the theoretical and the practical.

A different situation, however, exists where plans are prepared for competitive bidding. In these cases, the contractor is rarely consulted due probably to the remoteness between the designer and the contractor or possibly the danger of criticism of playing favorites. This is where, in many cases, that gap exists and where the construction consultants can show his worth.

In regard to Mr. Law's contention that the constructic consultant idea "smacks unfortunate of government-type thinking—i.e. add more men and expend more money," I can personally testify that this is a mistaken and extravagant statement.

After thirty years in private engineering-construction work, plus five years, with the Seabees, I came with the Corps of Engineers three years ago and believe I am able to see the "goverment-type" picture from a practical, cost-conscious, outside viewpoint. During this time I have found that the goal of the personnel of the Corps has been to produce the best possible designs at the least practical cost.

My duties are, in effect, as a construction consultant advising the planning and design of major civil works projects—which have included work on the Passamaquoddy Tidal Survey with its unprecedented problems entailing all forms of heavy construction. The special position that I occupy was created in order to utilize extensive construction experience in refining project designs towards the goal of practical perfection.

I believe that it could easily be shown that my modest efforts are paying off in savings far exceeding my salary. Here is a case where the *wisdom* of "government-type" thinking can show that the construction consultant can become a valuable investment in the work of project development.

HORACE C. CRANDALL
Construction Consultant
Reading, Mass.

▶ Reading the various letters in recent issues on the subject of Construction Consultants I find it particularly aggravating to read opinions of officers of general contracting concerns claiming remarkable abilities as construction consultants on their own work.

Contractors, like any other businessmen, are in the business to make money and in order to accomplish that purpose they, like businessmen, surround themselves with a minimum of the best talent available which constitutes the nucleus of their organization. When a large contract, or several small ones, happen to hit, they of necessity resort to ads, such as we see in ENGINEERING NEWS-RECORD and try to build up their manpower.

Unfortunately those engineers who form the basic organization are too busy with design details to get into the field, except at rare intervals, to check their own field organization and the results often are most unhappy.

There is no question of honesty of intent but rather one of human capabilities.

Based on my own experience as an employee of consulting engineers and owners covering a period of over 30 years it is my strong opinion that someone who is not influenced by the profit motive should be in charge of construction inspection.

FRED W. WALSH
Beachwood, N. J.

Make Design Competitive

SIR—The Oneida Lake Bridge (ENR Mar. 31, p. 38) is not only an outstanding one for span but is a thought-provoking one as well. A record for prestressed concrete, it carries a price tag of $1,700,000—about $40 per sq ft on over-all dimensions—calling attention again to the ghastly price of glory. Yet we are told that a tied steel arch was seriously considered at an earlier date and that only a low estimate of $2,204,000—$52 per sq ft—prevented the submittal of bids on it.

We also have been told in past ENR pages of another prestressed concrete bridge—at Stroudsburg, Pa. There, under a different specification, a contractor submitted an offer to build the bridge of structural steel and save the state $102,000. The offer was accepted.

(*Reader Comment continued p. 14*)

Engineering News-Record welcomes expression of opinions from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance. Letters should be addressed Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

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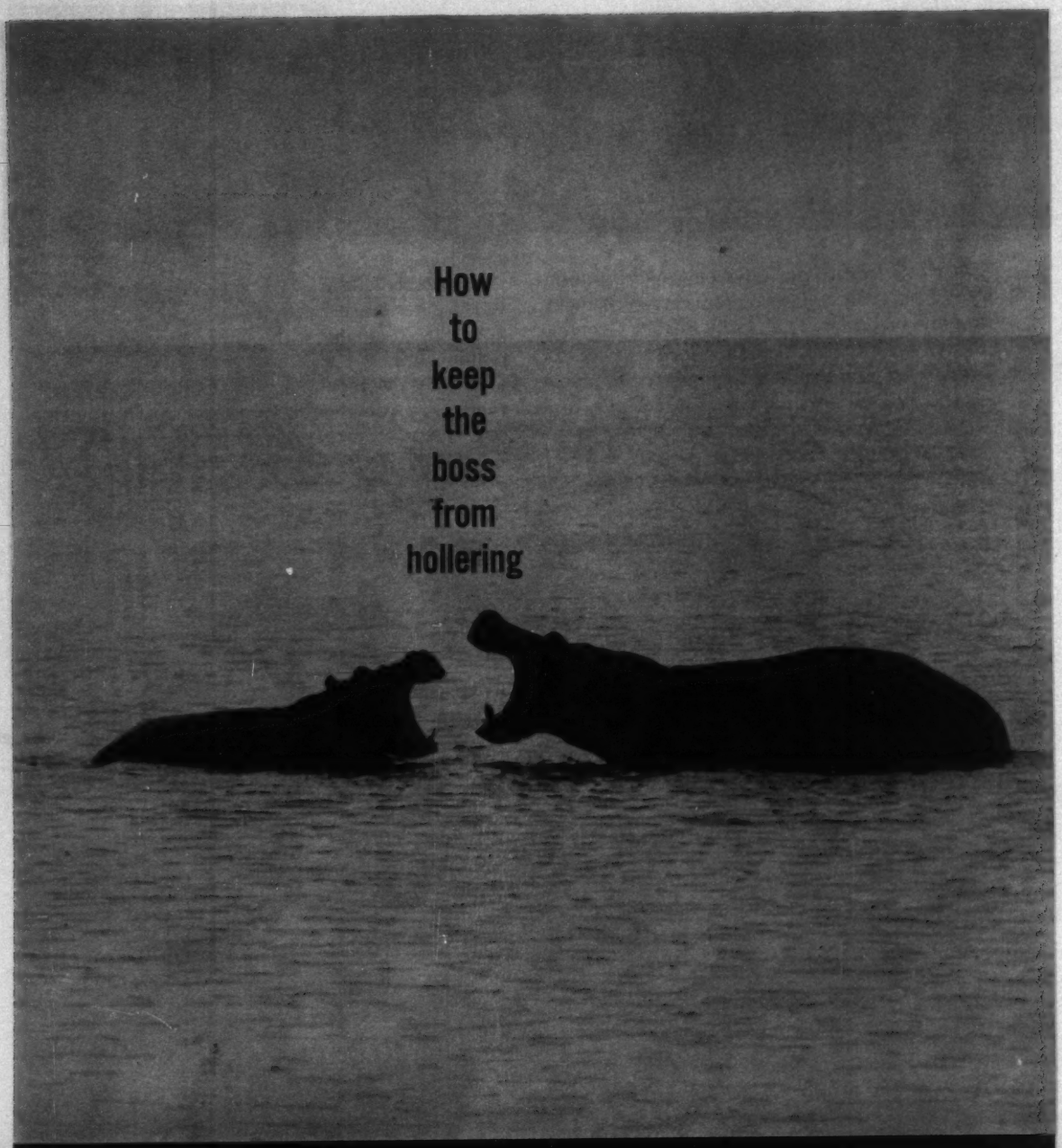

...about metal and masonry corrosion.

Start by using Allied Chemical 34Yc Cold Coating #134 and Cold Tar Paint #110. Both items offer high-quality, low-cost protection against metal and masonry corrosion. 34Yc is excellent for all surfaces exposed to highly corrosive conditions, extreme moisture, or acid and alkali fumes. It's also an ideal coating for tanks, pilings, structural steel, underground pipes and units. Coal Tar #110 is preferred for outdoor frames and posts, safety and sprinkler piping, transmission towers, general railroad work.

If your industrial distributor is not currently stocking these products, write to Industrial Tar Products Dept.

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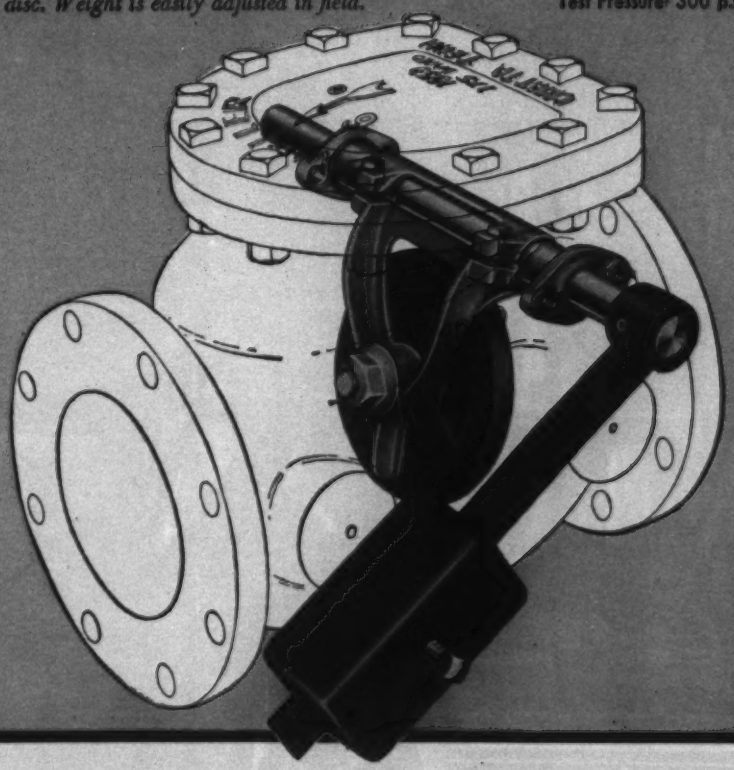
heavy duty disc assembly that lasts and lasts!

Lever and Weight Type

. . . ideal for use in pump suction or discharge lines to cushion and reduce slamming and hammering. Lever may be positioned to speed up or slow down closing of disc. Weight is easily adjusted in field.

Iron Body — Fully Bronze Mounted
Bronze Seat Ring
Bronze Disc Ring or Rubber Faced Disc
Flanged, Screwed or Hub Ends
Working Pressure: 175 p.s.i.
Test Pressure: 300 p.s.i.



All working parts of these new Mueller Swing Type Check Valves are heavily made to assure long service life and dependable operation *without maintenance.*

A heavy stainless steel hinge pin is used on all lever and weight type (shown) and lever and spring type check valves. This pin is extended through the hinge plugs to permit the lever to be used on either side of the body. An "O" ring on the plug prevents leakage around the pin.

The plain type, without lever, weight or spring, uses a new combined hinge pin and plug which is securely and accurately held to the body by studs and nuts. An "O" ring positively seals the plug to prevent leakage.

Large, wear-resistant bearings and a full-width clapper arm hinge, used in all types, accurately and rigidly align the disc to eliminate chatter and vibration.

These new, heavy duty check valves have been specifically designed for repeated opening and closing applications in water works pumping stations, water filtration plants, sewage treatment plants and general industrial plants. They are suitable for horizontal or vertical installation on water or oil lines.

Write for specifications.

The many exclusive features of these new check valves are typical of the attention to detail in research, design and engineering that becomes a part of every Mueller product.

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CHEVROLET
1987

CHARLIE OWEN STAKES HIS WHOLE OPERATION ON CHEVY'S STAMINA AND TORSION-SPRING RIDE

C. L. Owen, vice-president of GO Oil Well Service, Fort Worth, puts his faith and $15,000 worth of electronic equipment in his Chevy panel and sends it out on rugged oil field duty every day of the week. They used to have to pad the sensitive electronic recording panel to cushion out road shock and vibration. But not any more. Not with torsion springs soaking up bumps and jolts. Chevy's new ride is "made to order," according to Charlie Owen. "In our oil well locating operation we stay on the go anywhere, any time . . . and count on less breakage along with lower maintenance costs." The GO company goes for Chevy 100%. Driver John MacPherson says, "The '60 Chevy's ride and handling are really slick. You'd think this truck had power steering."

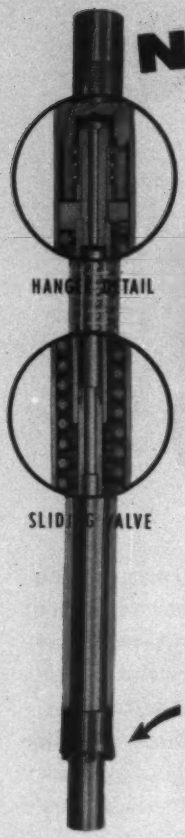
■ They're speaking right up, these owners of '60 Chevrolets, talking about a new truck build that's the best yet at putting out extra dollars'-worth of profit-producing work every day. And you'll be talking, too, once you turn these Chevy advancements loose on your money runs!

New truck-and-tire-saving ride that leads to shorter trip times, too. The biggest advance in trucking in years: independently suspended front wheels that step right over bumps, virtually eliminate most of the severe impacts that can wear out trucks and tires before their time. You profit by a big savings on maintenance; get a bigger daily work output because these trucks float you over rough roads with fewer slow-downs. And the tough torsion bar springs assist further in soaking up shocks before they can do any damage.

New longer lasting cab construction . . . new comfort that boosts driver efficiency. You'll find that drivers stay fresher, work better in a new Chevy cab. There's more leg room, head room and hip room than ever before, new visibility that's greater by more than 26%, new foam-padded seat, new see-at-a-glance instrument panel. And new cab construction features—double-panel roof, box-section door pillars and many more—will help keep your Chevy on the road years longer.

Tough truck power that knows the most about saving money. Efficient Chevy short-stroke V8's that range from 160 h.p. all the way up to 230 h.p., offer as much as 335 ft.-lbs. of torque for toughest going. Or America's most widely used truck 6's, engines that do more work per dollar with time-proved, truck-built components. Look into it for yourself; Chevy's totally new working ability is available at your Chevrolet dealer's right now. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

1960 CHEVROLET STURDI-BILT TRUCKS CHEVROLET



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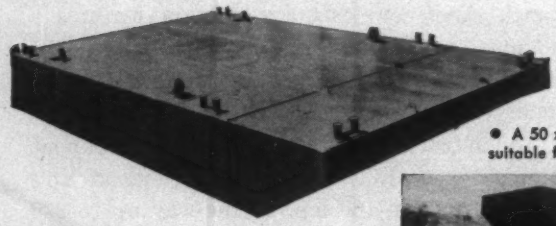

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★ Designed specifically for the contractor who has need for transporting his floating equipment in a short time with the least effort and expense. By quickly and easily bolting together any number of sections, the contractor has an extremely adaptable piece of equipment to provide an economical solution to any floating problem. Dragline, trench hoe or clamshell dredging, pile driving, crane lifting, pumping, pipe laying or floating equipment are some of the many uses of the versatile Manitowoc Sectional Barge.

Write for additional information and prices. Sold direct or through Manitowoc Engineering Corporation distributors.

• Easily transported by rail or highway.

• Assembled barge with crane and spuds.

MANITOWOC SHIPBUILDING, INC.
MANITOWOC, WISCONSIN

. . . Reader Comment

Had New York had a similar specification, some contractors undoubtedly would have proposed hanging steel plate girders, to be erected in cross-braced pairs, at the ends of the cantilevers, which would have cut hundreds of tons of costly dead load from the middle of the 320-ft span. New York State would have benefited to the extent of several hundred thousand dollars.

I regret the necessity of referring to specific projects; yet only by so doing can I focus attention on the price monopolized thinking on bridge design exacts from the country. All the pother over the relative efficiency and economy of public and private engineering yields nothing. Designs that are euphemistically called "conservative" may come from either source. They may indeed be conservative, but the basic nature and layout of a bridge may be such as to render high costs inevitable.

What can the U. S. Comptroller General and the U. S. Bureau of Public Roads, deeply concerned as they are about the cost of bridges, do about the matter? There is only one effective thing they can do: Require that there be some competition in the design of bridges for which U. S. funds are used.

I suggest that, as a trial, it be made mandatory that the next ten uses of any state's "standard design" of steel, concrete, and prestressed concrete bridges be subject to alternate designs; that contractors be invited to submit bids on such alternate designs whose loading and quality complies with standard requirements, and that time be provided for both the preparation of the alternate design and official checking. Then the award should be made to "the lowest and best bid". For good measure, let's also include the standard designs of the U. S. Bureau of Public Roads.

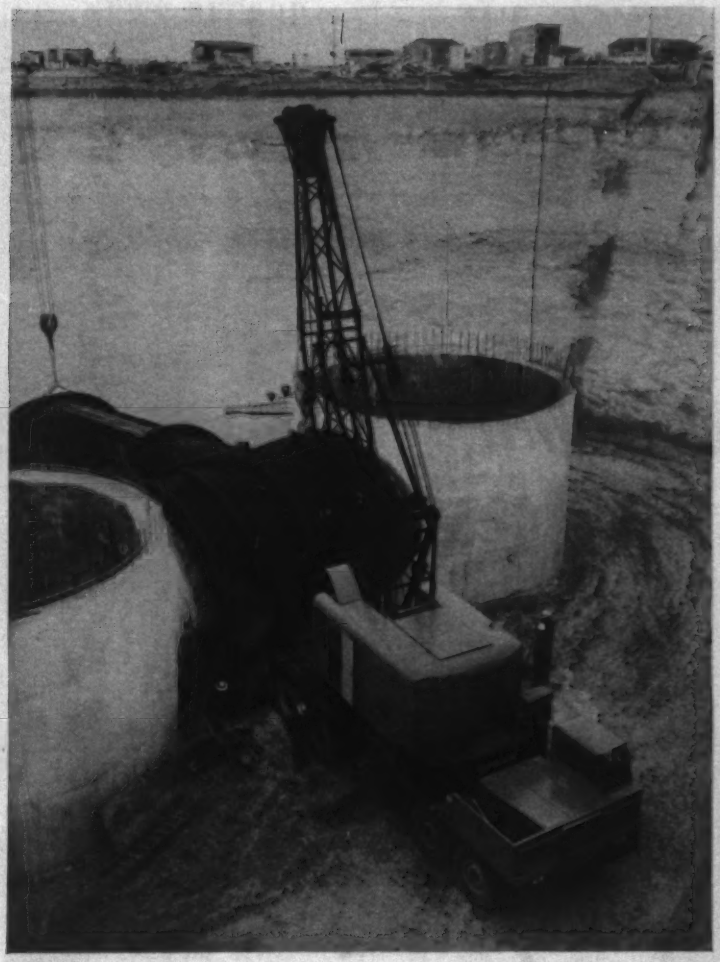
HOMER M. HADLEY
Consulting Engineer
Seattle, Wash.

Wrong Number . . .

Because of a typographical error, ENR incorrectly reported last week that New York consultant Lockwood, Kessler and Bartlett had business development and general expenses in 1958 of $44,586. That should have read $444,586. The story reported on the firm's lower '59 net, resulting from an increase in supervisory work and increased expenditures on business development (ENR Apr. 14, p. 141).

. . . And More Names

Our article on the Squaw Valley Chapel (ENR Mar. 3, p. 32) omitted the following credits: Collaborating with the designers were Roy G. Watanabe of Barbachano, Ivanitski and Watanabe, El Cerrito, Calif. H. D. McNiven served as consultant.



Working on antenna silos 27 ft. in diameter and 65 ft. deep, the MC-760 makes big lifts with precision control. Its rugged carrier with a 230" wheelbase is built by Lorain to withstand the torsional stress of heavy-duty service. "Shear-Ball" Connection keeps swings smooth, reduces maintenance, and is warranted for 10 years.

At nation's first totally underground missile base Lorain Moto-Cranes speed construction

With its Power-Set® Outriggers set for sure stability, this 65-ton Lorain Moto-Crane MC-760 positions 42-ton antenna silo terminal junctions at Lowry Air Force Base near Denver. This is one of two of this model at work here. Morrison-Knudsen Company, Inc. and Associates use the capacity and mobility of Lorain Moto-Cranes in constructing six missile complexes of their $67.5 million contract.

The MC-760 loses no time as it moves between jobs at each extensive complex. Power-Set Outriggers adjust to the roughest terrain in less than a minute. Move-ups take even less time. This Moto-Crane travels 5 to 37 miles between complexes at 37 mph. At the job the "760" has the balance, control and capacity to keep output high.

Today's pace setting jobs call for reliable Moto-Crane performance. Lorain dependability is backed by over 40 years' experience in building rubber tire cranes. Progressive contractors know that Moto-Cranes get to the job faster, finish the job quicker.

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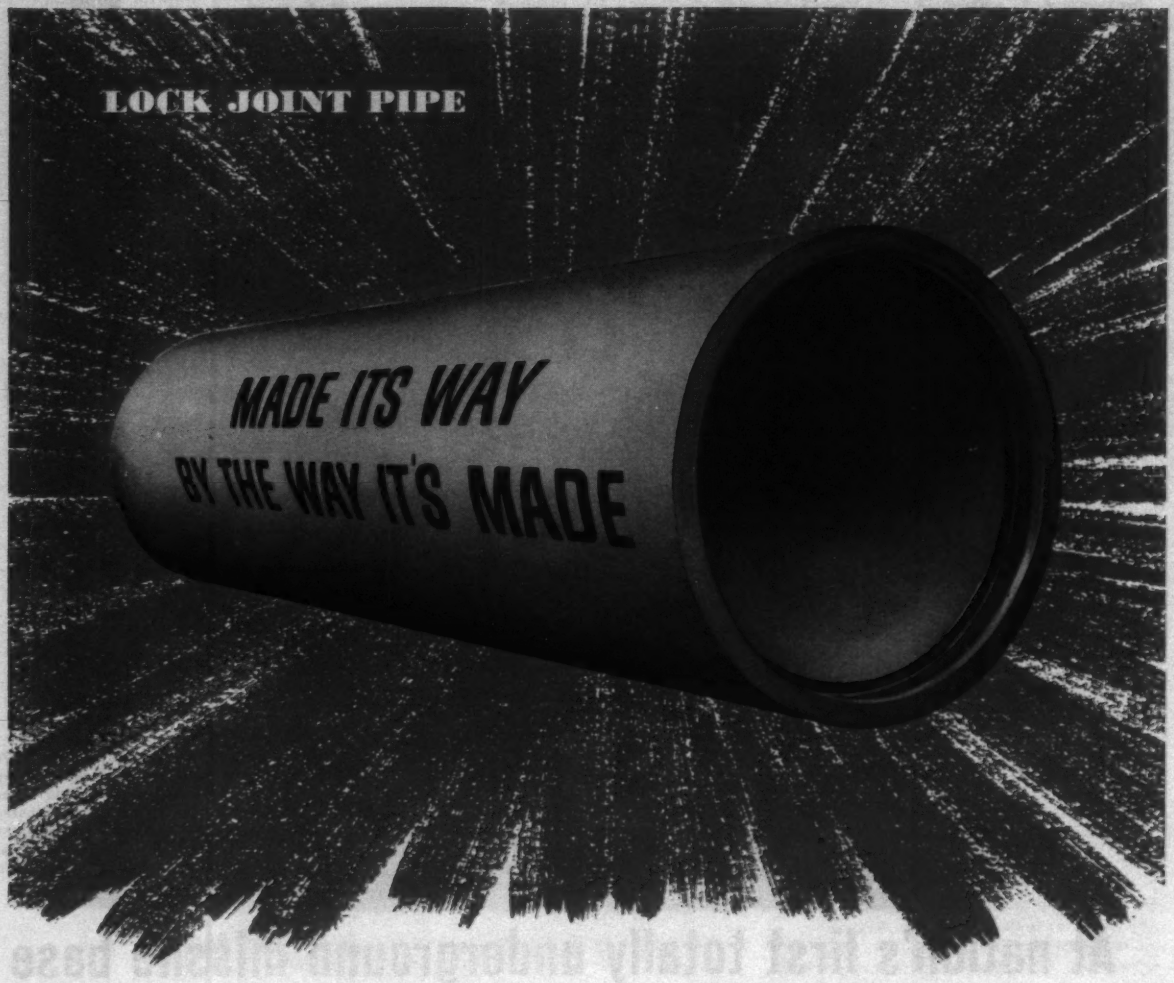

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Lock Joint's well-tested, conservative steel reinforcing design produces pipe of unusual strength and safety. Carefully analyzed select materials, expertly combined by experienced craftsmen, assure unusual durability and permanent high flow characteristics. The watertight, flexible Rubber & Steel Joint permits rapid, economical installation and immediate backfill.

So, when considering materials for water transmission and distribution mains or sewer or culvert lines, make certain to weigh the merits of the pipe that *made its way by the way it's made* — LOCK JOINT CONCRETE PIPE.

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THE CONSTRUCTION WEEK

NEW RECORD TAKING SHAPE . . . –Heavy construction contract awards are up to $758 million this week, pushing the 1960 cumulative total to $6.2 billion, 7% above one year ago. This is second only to the boom period of '56.

. . . BUT EMPLOYMENT STILL LAGS–Construction employment fell off in March by 116,000, to 2,273,000, reports the U. S. Department of Labor. That's the lowest March figure since 1950, when the total was 1,916,000.

GUESSTIMATE OFF BY $22 MILLION–It's going to cost nearly $22 million more than the Navy had originally estimated to finish the 600-ft-dia radio telescope under construction at Sugar Grove, W. Va. (ENR May 28, p. 24). The original $79-million estimate was raised last week to $100.6 million. Main reason for the low original estimate is the unprecedented nature of the project. But also adding to the Navy's bill is $650,000 worth of roads to the site–the Navy had hoped West Virginia would build them.

WESTWARD FROM BRASILIA–Brazil, which this week transfers its seat of government from Rio de Janeiro to the new capital city of Brasilia (see p. 24), is planning another bold construction job–a road penetrating 1,000 miles into the interior. A 1962 completion date is under serious consideration.

TWO-YEAR FAIR–New York City's World's Fair may run two years–1964 and 1965–instead of one as originally proposed. That's the only way the production can break even, feasibility studies indicate. Exhibit buildings will probably be temporary structures.

LABOR BOARD SPEED-UP–Look for more and faster disposition of charges before the National Labor Relations Board, and for a greater emphasis of settlement procedures. That will be the result of what NLRB general counsel Stuart Rothman calls a "major breakthrough" in case-handling at the local level. Processing time has been cut more than 60%, the backlog of "overage" cases almost eliminated, he says.

TV SPECTACULAR–A TV antenna tower under construction in Cape Girardeau, Mo., will rise 1,676 ft., nearly one-third of a mile, topping the antenna tower on the Empire State Building by 210 ft. Triangular in plan, the steel structure will have 18 guy cables bracing it. Dresser-Ideco Co., Columbus, Ohio, is designer-builder. Meanwhile, the U.S. Court of Appeals has upheld FCC denial of a construction permit for a 2,000-ft TV tower that Deep South Broadcasting Co. wanted to build at Selman, Ala. FCC said the broadcasting company failed to show how it could build a structurally sound tower that tall.

engine power
BY CATERPILLAR

Increase earnings– increase performance with portable electric sets

...for crusher and screening plants

Crushing and screening can be more profitable when electricity is the power source for screens, crushers and conveyors. Caterpillar Electric Sets supplying power to electric drive motors enable you to eliminate as much as a ton of mechanical power linkage and its resultant frequent maintenance. Municipal power failures are no longer a problem either. Electric sets can be factory supplied with either skid bases containing integral fuel tanks or trailer mounted. Both provide ready portability to those off-the-high-line jobs.

...for asphalt and cement batch plants

Caterpillar Electric Sets powering variable speed motors permit the highest degree of control possible in portable plants. From one central location, an operator can apportion the exact amount each operation can handle regardless of material size, moisture content, or density. The result is more efficient production. Increased profit is another benefit due to the inexpensive fuel and minimum maintenance requirements of a Caterpillar Electric Set.

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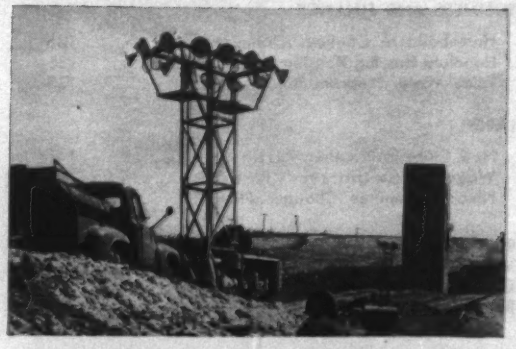
Round-the-clock operation required to meet today's demands for fast delivery and high production can go on, thanks to the versatility of Caterpillar Electric Sets. You can also use them to power the electric drive wrenches when you assemble plants on location, welding equipment, and other tools for plant maintenance.



Your Caterpillar Dealer is geared to help you with your powering or repowering needs. Ask him to help select the electric set necessary to power your equipment. Caterpillar Electric Sets are available in nine basic sizes ranging from 30 KW to 350 KW and your Caterpillar Dealer has all the engineering data at hand to plan the most profitable installation for you. Profitability of some plants can be increased as much as 15% by accurate powering with Caterpillar Electric Set power. Write for Form 20172—it gives a complete story on Caterpillar Generator features.

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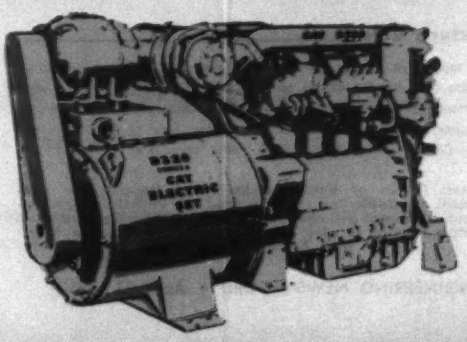
The Cat D320 Electric Set is easy to start—requires no adjustments after installation—anyone can run it.



WASHINGTON OBSERVER

- Highway hearings begin again
- Nixon likes Ike's economics
- Help coming for urban mass transit?
- New homebuilding market abroad

● **Highway hearings will open next Monday before Rep. John A. Blatnik's Public Works subcommittee.** They are scheduled for four or five days, and will concentrate on alleged malpractices in construction of a nine-mile stretch of Interstate road near Tulsa, Okla.

Rep. Blatnik says his staff "has unearthed evidence that there was use of substandard materials, that there was falsification of records and reports and that federal and state inspections did not uncover these departures from acceptable construction practices."

Bureau of Public Roads officials, state highway officials and contractors will be called. The roads subcommittee plans to hold one or two similar hearings on other questionable practices before Congress adjourns by early July.

—

● **Vice President Nixon eased into the political campaign through a side door this week.** His top-level Administration committee on inflation published a report saying that vigorous economic growth combined with stable prices lie ahead for the U. S.—if the same policies pursued by the Eisenhower Administration are continued.

Chief among these policies are budget surpluses and tight money whenever inflation threatens, the committee said.

The past eight years add up to one of the best periods in U. S. history for growth and price stability, the committee says. In effect, it was a call for GOP campaigners to challenge Democrats on the economic issues.

Mr. Nixon is determined not to campaign actively until after the GOP nominating convention in July. But in the report he makes it plain that if he wins the White House he will make no fundamental change in President Eisenhower's economic policies.

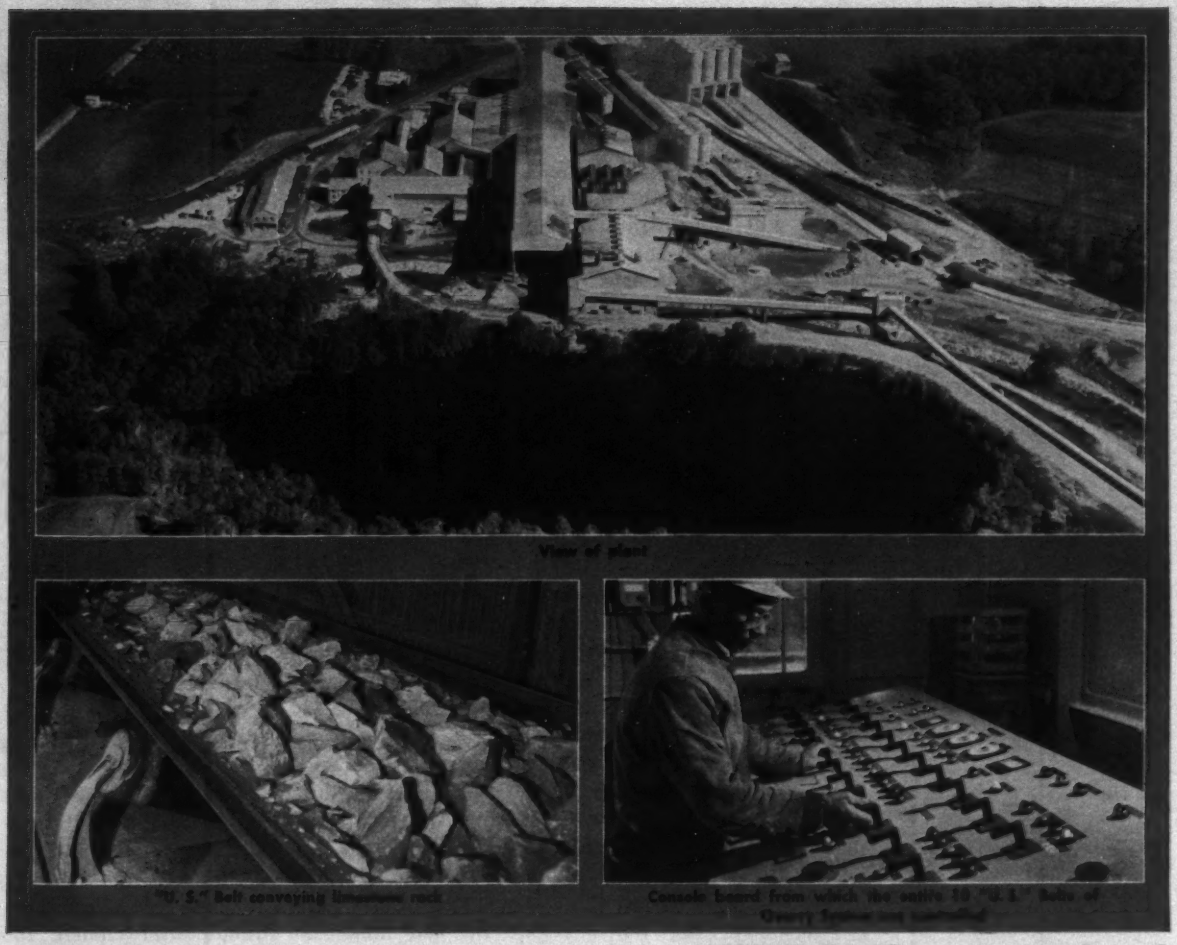
—

● **Legislation to help cities meet their mass transportation needs will be considered during housing hearings this year** if municipal officials have their way. A bloc of Congressmen and Senators is backing a drive to authorize planning grants and loans supervised by HHFA to study ways of using existing transit facilities and financing improvements in highways, subways and the like.

—

● **A new market for U. S. homebuilders overseas has been cracked by Kansas builder Willard Garvey.** He is already building a 100-unit housing project in Peru using counterpart funds, the local currencies accumulated from sale of surplus U. S. grains. Mr. Garvey sees similar opportunities for builders in India, Pakistan and many other countries where the funds are available.

US RUBBER CONVEYOR BELTS



View of plant

"U. S." Belt conveying limestone rock

Console board from which the entire 10 "U. S." Belts of Quarry System are controlled

Lehigh Portland's Union Bridge plant Highly Conveyorized

This immense plant in Maryland has a capacity of 3-million barrels per year. To feed its huge, ever-hungry machinery, the crushed limestone, sandstone and shale are carried on an automatic conveying system, with rubber belting made by "U. S.".

The entire system is so trouble-free that one operator (plus an oiler-helper) controls a series of 10 of the "U.S." Belts from console board at the quarry.

The main belt in the system is a 5-ply CX U. S. Matchless;® 3560' long on 1780' centers, 36" wide.

It carries 600 tons of raw limestone per hour, extends from the quarry to a transfer belt which runs to the storage building.

Coal and gypsum are brought nearly 500 feet to storage by one of the belts in another conveyor system. Being separate from the conveyor handling limestone, either gypsum or coal can be conveyed to storage at any time.

Massive as this Lehigh plant is, provision for expansion has been designed into the conveyor systems. The superior troughing and stamina of "U. S." Belts enable them to handle greater loads if capacity is increased.

The reliability of "U. S." Belts demonstrated in this plant is one reason why United States Rubber is the world's largest manufacturer of conveyor belts.

• • •

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Pipelines: Biggest Year Ever?

When the Canadian government decided early this month to permit export to the U. S. of billions of cubic feet of natural gas from the fields in western Canada, construction projects totaling close to half a billion dollars came to life and planning began on other work amounting to several hundred million dollars more.

This could make 1960 the biggest year ever for pipeline construction in the U. S. and Canada.

One definite project, a pipeline to carry gas from Alberta to California, will account for $338 million–$192 million in the U. S., $146 million in Canada.

Another, which will carry gas into Minnesota and Wisconsin, will add $52 million in U. S. construction and $39 million in Canadian work.

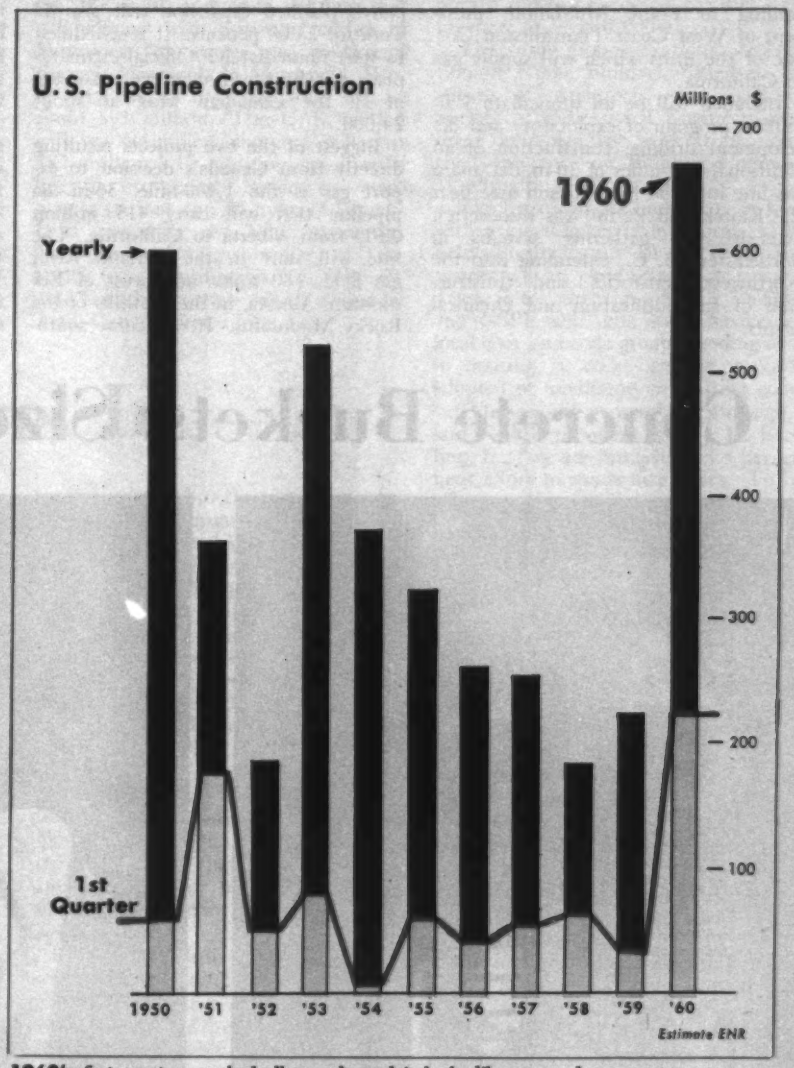
And according to executives of the transmission line companies concerned, this is only a beginning. Feeder lines and auxiliary construction will boost the present estimates by many millions of dollars.

Canada's decision also bolsters hopes for a long-considered, though not yet planned, $185-million line to carry liquefied petroleum gas from the Alberta fields to the Chicago area. This job will include $150 million for transmission lines, half of them in the U. S.

For U. S. pipeliners, the Canadian decision to export gas is a double thickness of frosting on what was already a rather sweet cake. During the first quarter of 1960 U. S. pipeline contract awards reported by ENR exceeded $218 million. That's $2 million more than the total contract awards for all of 1959, and $20 million more than the total for 1958. It is also more than three times as big as first quarter awards for any year in the past decade, except 1951.

U. S. pipeline work has been on the increase since the 1958 reversal of the Memphis Decision. But not since 1950, when a building boom and the defense needs of the Korean War pushed pipeline awards to $601.2 million, has the picture looked so bright.

(The Memphis Decision was handed down in November, 1957, by a U. S. Circuit Court of Appeals. It made it illegal for transmission companies to apply to the Federal Power Commission for rate increases without prior consent of their customers. The decision later on was reversed by the U. S. Supreme Court in December, 1958.)



1960's first quarter smashed all records; and it looks like a record-year.

Now it appears certain that the 1950 record will topple. Aside from the projects reported in the first quarter and from the Canadian-fostered jobs, pipeline activity is great and plans are big.

Some $36 million in projects have been approved or started in Alaska, Montana, Wyoming and the Midwest. Panhandle Eastern Pipe Line Co. is awaiting only federal approval before starting some $59 million in looping operations from existing lines between Texas and Illinois. Trunkline Gas Co., a Panhandle subsidiary, has asked approval for $45 million in looping operations in Louisiana, Mississippi, Tennessee, Kentucky and Illinois. The People's Gas, Light and Coke Co. of Chicago is planning a $113-million expansion in 1960. Of this, some $74.7 million will be in pipeline looping from Texas to Illinois on lines operated by two subsidiaries, Natural Gas Pipe Line Co. of America and People's Gulf Coast Natural Gas Pipe Line Co.

For Canadians, the picture is even

brighter. They will benefit not only from the pipeline construction and from the sale of gas, but also from developmental expenditures and auxiliary construction.

British Columbia and Alberta will benefit to the extent of almost $250 million just from the initial investments required for development, according to Frank McMahon, president of West Coast Transmission Co., one of the firms which will supply gas to California.

Included will be an immediate $50-million program of exploratory and development drilling; construction of an additional 300 miles of 30-in.-dia. main gas line into the Fort Nelson area near the Kiotch and Petitot gas discoveries; extensive gas gathering systems in northeastern B. C., extending into the Northwest Territories; and construction of gas purification and chemical plants.

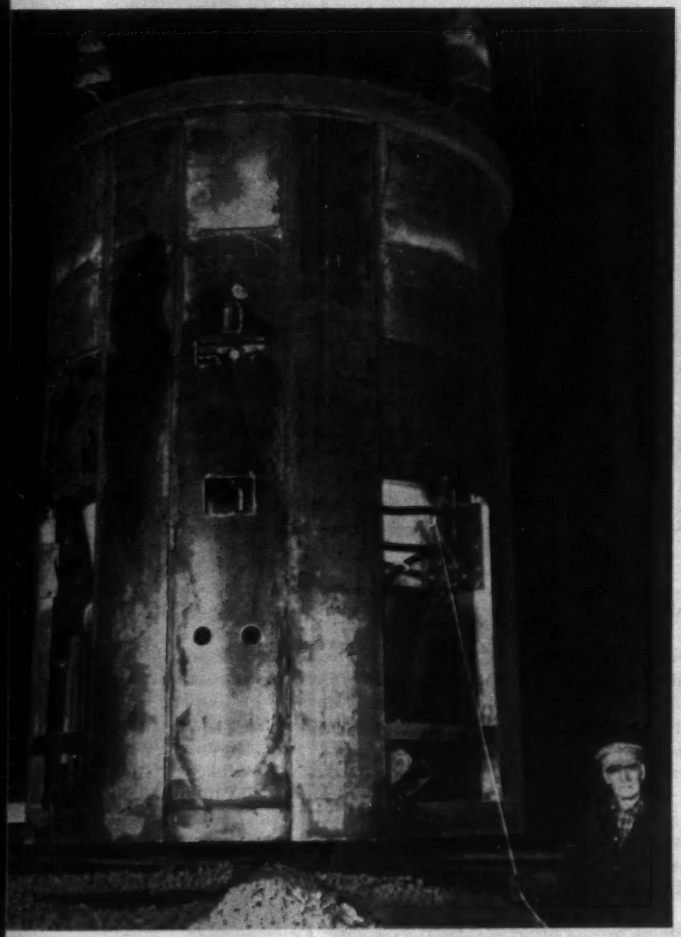
And, as an important by-product, there will be a tremendous amount of roadbuilding and power transmission work throughout the entire gas supply area.

James Kerr, president of Trans-Canada Pipe Lines, Ltd., which will tap an existing line with a feeder to carry gas to Minnesota, says that his company's planned expansion will provide work for 2,000 persons. It is scheduled to start immediately. Official estimates place the short-term employment needs of all the Canadian work at about 24,000.

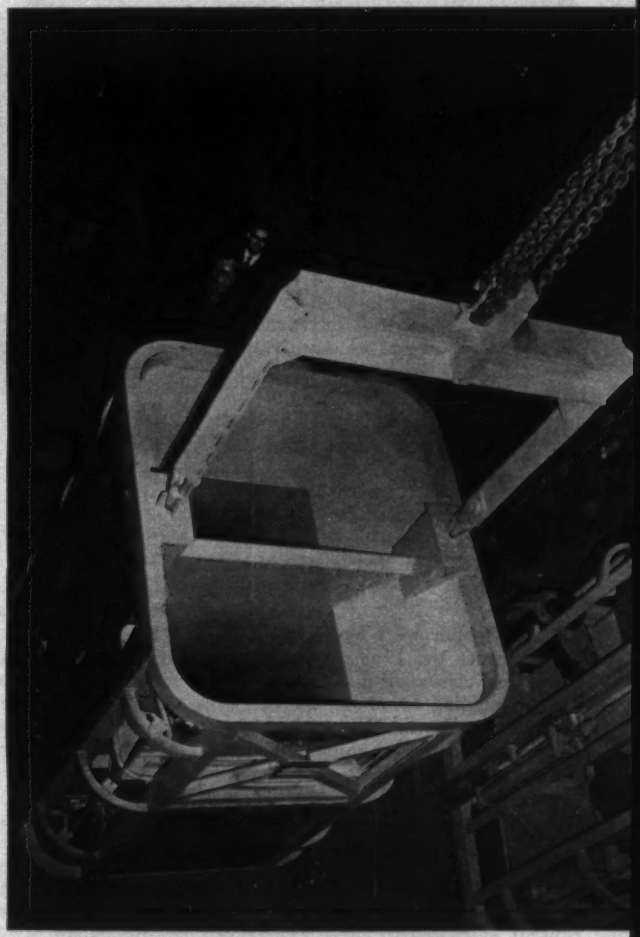
Biggest of the two projects resulting directly from Canada's decision to export gas is the 1,400-mile, 36-in.-dia pipeline that will carry 415 million CFD from Alberta to California. The line will start in the Berland River gas field, 150 miles northwest of Edmonton, Alberta, in the foothills of the Rocky Mountains. It will come southward, paralleling the Rockies, and will pass west of Edmonton and Calgary. Just above the U. S. border it will swing west, across the Rockies and the southeast corner of British Columbia. It will enter the U. S. at the top of the Idaho pan handle, and will cross into Washington east of Spokane. It will then go through central Oregon and into California at Modoc County. The line will terminate at Antioch, west of San Francisco, where it will tie into an existing system owned by Pacific Gas and Electric Co.

Installation of the line will pose some problems. It will be constructed at elevations ranging from 6,600 ft to sea level, and through areas where temperatures vary from 115F in summer to −55F in winter. In addition, there are 14 major rivers to be crossed, including the Snake, the Sacramento and the San Joaquin. The terrain will range from steep, densely forested

Concrete Buckets: Size Limit Out;



Giant bucket holds 12 cubic yards.



This one has radio-controlled discharge gates.

mountains to desert, and from lava beds to rolling wheatland.

Official permission for construction of the 490-mile-long Canadian section of the line has been granted. Hearings on the applications by the Pacific Gas Transmission Co. to build the 614-mile Idaho-Washington-Oregon section have been completed and a favorable Federal Power Commission decision is expected soon. Pacific Gas & Electric is awaiting approval of the California Public Utilities Commission to build the 296-mile California section.

Bechtel Corp., San Francisco, is engineering manager for the project. Much of the design has been completed; the entire 1,400 miles has been surveyed and land acquisition is under way, according to PG&E.

The Canadian section of the line will cost $146 million; the Idaho-Oregon-Washington section, $129 million; the California section, $63 million to $64 million. Contracts for construction will go out for competitive bidding as soon as approvals are received from the FPC and the California PUC, and it is expected that the line will be in service before the winter of 1961.

The second major project stemming directly from Canada's new export policy is already approved and ready to go. It's a 30- and 24-in.-dia line that will connect with existing facilities in Winnipeg to carry gas southward through Minnesota to Marshfield, Wis.

Total cost of the installation will be about $91 million. The U. S. section will be 504 miles long and will cost $52 million. In addition to a main line, the utilities will include two compressor stations and 56 miles of laterals. It is owned by the Midwestern Gas Transmission Co., a subsidiary of Tennessee Gas Transmission Co. The 50-mile Canadian section will be owned by Trans-Canada Pipe Lines, Ltd.

Radio Control In

Blaw-Knox Co. has built a concrete bucket that holds 12 cu yd—the world's largest, according to company officials. The huge bucket, designed and constructed for Merritt-Chapman & Scott, will be used with two more like it to deliver the 5 million cu yd of concrete needed for Glen Canyon Dam in Arizona.

The Pittsburgh firm has also built three double-hoppered, 8-cu-yd buckets that are radio-controlled. These were ordered by Red River Builders, the joint venture building Greers Ferry Dam on the Middle Fork, Little Red River in Arkansas.

These compartmentalized buckets meet Corps of Engineers specifications which limit the total load to 8 cu yd and any one pour to 4 cu yd. The Bureau of Reclamation has apparently broken the size barrier with the 12-cu-yd buckets to be used at Glen Canyon.

M-C&S's 12-cu-yd bucket (at left) has an hydraulically operated roller gate, 4 ft square that can be stopped at any position to limit the flow of concrete.

Weight of the load of concrete charges the hydraulic system with sufficient pressure to allow three complete opening and closing cycles. The bucket stands 11 ft 7 in. high, and is 8 ft in diameter.

Two 1¾-in. wire ropes will suspend the 6¼-ton unit from a cableway spanning the 700-ft-deep canyon of the Colorado River.

The radio-controlled units began casting concrete at Greers Ferry last week. The units are self-powered, and hydraulically operated like their gargantuan contemporaries, but the two roller gates are opened and closed by a small ultra-high-frequency transmitter that can be operated from as far away as 300 ft.

The push-button operation works like this:

Each of the three buckets is equipped with a battery-powered receiver set on its own private frequency. Loading them with concrete charges the hydraulic system as in the big bucket.

The bucket is then lowered on a conventional cableway to the monolith being cast. While this is happening, the radioman literally dials on a telephone-type dial the number of the particular bucket that is arriving. This automatically fixes his transmitter on that unit's frequency and it is "tuned for dumping."

From his position, perhaps 80 ft away on an adjoining monolith, the operator just pushes a button to open either of the 4-yd hoppers. The roller gates can be variably opened or closed for dribbling of concrete, if desired.

After that bucket is emptied and removed for refilling, the operator dials the number of the next bucket. The number of buckets in use is limited only by the maximum combination of numbers dialable on a standard telephone dial, certainly sufficient for any dam job.

The radio-controlled units weigh in, empty, at seven tons and will hang from the cableway on 1¾-in. wire ropes.

Blaw-Knox engineers claim that the special frequency used for the bucket dumping circuit will not interfere with either blasting operations or normal two-way voice circuits.

For Code Reform

Industry groups to offer technical aid to cities

Three major groups have joined in sponsoring a plan designed to promote and maintain interest in building code reform and to provide aid to cities seeking new or revised codes.

The three groups—National Association of Home Builders, American Institute of Architects, and National Society of Professional Engineers—outlined their plan last week at an industry Conference on Building Codes in Washington, D. C.

The drive will get under way in June with a meeting on code reforms to be held simultaneously in 40 cities and connected by closed-circuit television. Then, local chapters of AIA, NAHB and NSPE will offer their services to local civic and code groups needing help in writing a code, getting a code adopted or modifying an existing code.

"This is not a one-shot campaign," said NAHB president Martin H. Bartling, Jr., "we are interested in a permanent effort to modernize codes. To be effective, the program must be continuing, and we think that for the first time we have the cooperation we need to make reform effective."

Cooperating with the three industry groups are all four major code-writing organizations—Building Officials Conference of America (BOCA Building Codes), National Board of Fire Underwriters (National Building Code), Southern Building Code Congress (Southern Standard Building Code) and International Conference of Building Officials (Uniform Building Code).

A reminder that code modernization is a construction industry problem came from John J. Murray of Jones & Laughlin Steel Corp. "If we don't do something, someone else will," he said. He warned of the possibility of federal intervention in code writing should local communities ignore the problem.

"At the same time," Mr. Murray added, "you don't want codes written at the local level by people who have no experience in the building industry. Builders, designers and manufacturers must sit down with local government officials and work out code programs with them."

Any effort to bring about code reform must be directed at arousing public interest and support if it is to succeed, pointed out Charles Rhyne, counsel for the National Institute of Municipal Law Officials. The best way to influence legislators is through a well informed, vociferous public, he said.

Mr. Rhyne also urged state legislation permitting municipalities to adopt a standard code by reference.

Brazil's new capital takes shape on a 4,000-square-mile site that used to be a jungle wilderness.

Half-Finished Brasilia Becomes

The world's biggest building construction project becomes the world's youngest capital this week. Although Brasilia is only half finished, the major government buildings await only the finishing touches and the arrival of President Juscelino Kubitschek and his government.

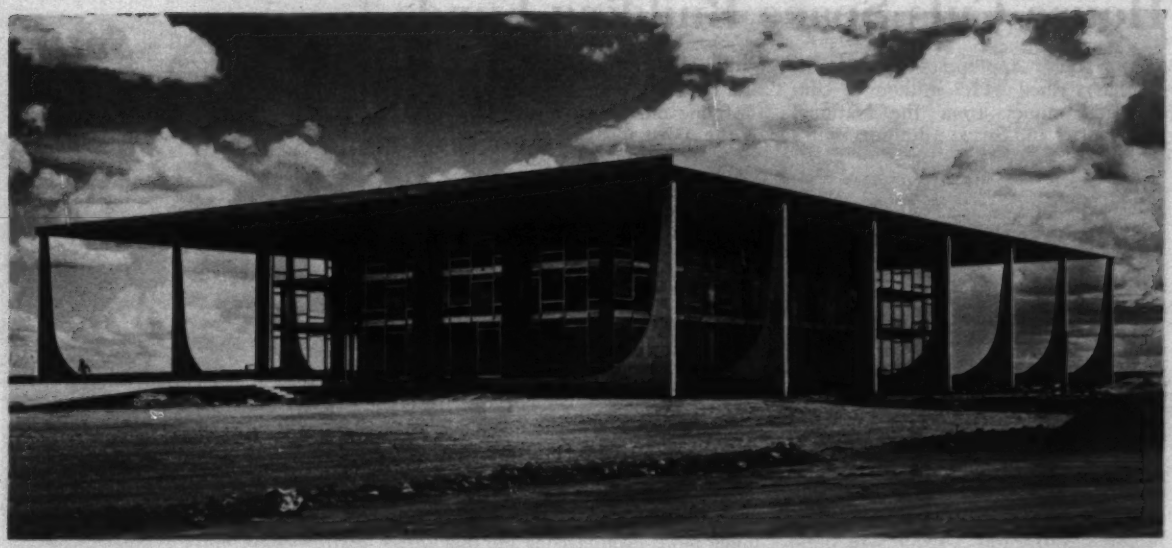
Yet to be built are utility installations (power now comes from motor generators), commercial buildings and foreign embassies. But Brazilian contractors are rapidly erecting the 5,000 apartment units that will house government employees, and Raymond International Inc., the only U. S. contractor at Brasilia, has completed 12 of the government buildings and a rock and earthfill dam 157 ft high and 2,030 ft long.

Most of the important buildings are either vertical slabs or long low box slabs, laid sideways. But for variety, architect Oscar Niemeyer has included such shapes as a dome (the Senate), a cantilevered marble rectangle on a marble base (the museum), a saucer (the Chamber of Deputies) and all sorts of free form churches.

City planner Lucio Costa designed the airplane-shaped city to sidestep many familiar urban problems. Streets are wide and free of intersections, apartments are spaced for light and air and

Bowl, dome and towers form core of government structures.

Civil employees will be housed in

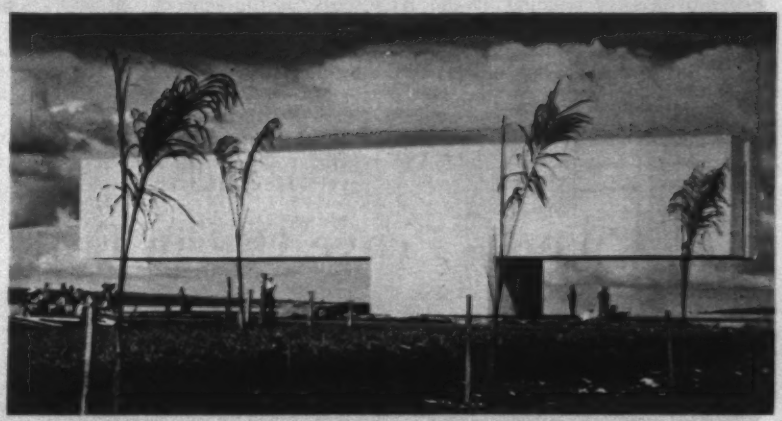


Concrete columns lend sweeping curves to the Supreme Court Building.

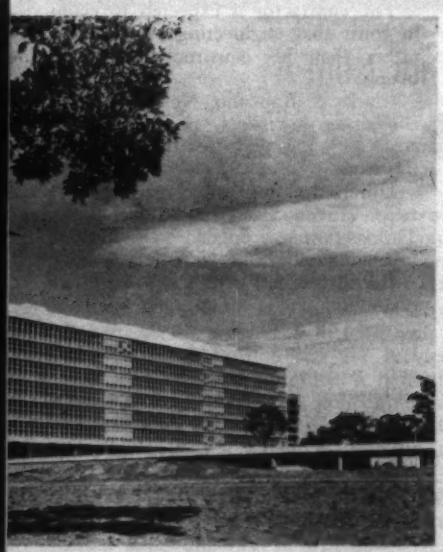
a Capital

grouped with local churches, schools and shopping centers. The site coverrs 4,000 square miles in an area that was accessible only by air when construction began four years ago (ENR Apr. 9, 1959, p. 30).

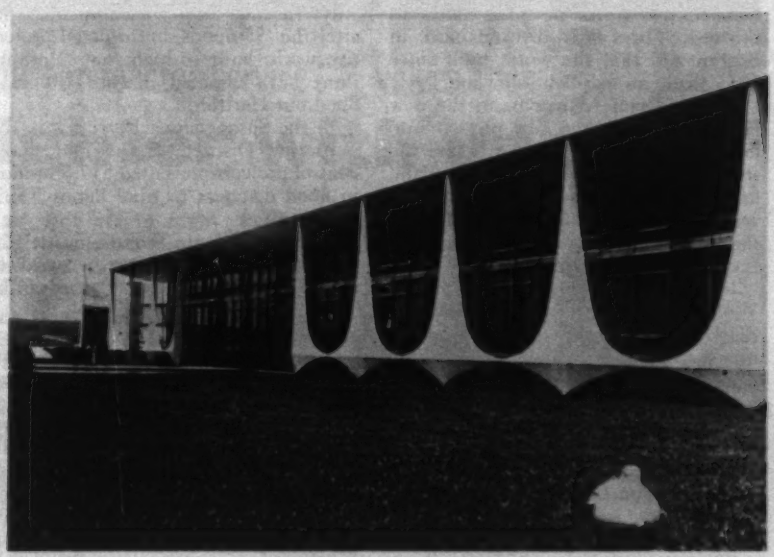
Brazilians hope the new capital will encourage much-needed development of the nation's interior. The city is now connected by superhighway with Rio de Janeiro, 600 miles to the southeast, and major arteries are under construction to connect it to five Brazilian states and to Bolivia.



Arms and base of T-shaped museum are in marble.



5,000 apartment units like these.



For the President's palace, stalagmitic concrete columns.

House Cuts Space Building Funds

The House Appropriations Committee has slashed $15.5 million of construction money from the National Aeronautics and Space Administration's 1961 budget.

The agency went to Congress with a total budget request of $915 million, up some $400 million from what Congress appropriated last year.

Included was a request for $122.7 million for new construction. This amounted to an increase of $33.4 million over the 1960 budget.

There is still a chance, however, that the Senate will restore some, if not all, of the cut.

Chopped from NASA's construction budget was a request for $6.5 million for a central laboratory and office building at Huntsville, Ala., along with some minor expansion of existing facilities.

Cut out too was a request to build a $435,300 publications library and technical services building at the Jet Propulsion Laboratory in California.

Funds for fallout shelters, estimated at about 5% to 7% of new facility costs, were eliminated by the House committee.

The legislators were critical of the high cost per foot to build the NASA facilities. For example, the cost of building laboratories at the Jet Propulsion Laboratory was $22 per square foot for frame and stucco construction. Some of the West Coast buildings carried a square foot cost of up to $26.25.

Rep. John J. Rhodes (R., Ariz.), obviously miffed at those prices, asked the NASA officials if they were putting gold into construction of the facilities.

Some legislators wanted to know if the NASA is making full use of government agencies to build its facilities.

Because of the specialized nature of the buildings, NASA said, it had turned to the Corps of Engineers to handle the job.

The General Services Agency was fine for most building construction, NASA spokesmen said, but "in the construction of wind tunnels and other special equipment, we have found it much more advantageous and much less expensive to do it with ourselves, so to speak, as the general contractor."

The space agency is sure to try to get the Senate to restore the money cut by the House committee. There seems to be a good chance that it will be at least partially successful.

The key argument will be that the nation's space efforts will suffer unless new working space is provided.

Flood Works Prove Out in East

A soggy spring in the East raised many rivers and streams to flood stage, but brought no serious damage. Flood protection measures built by the Corps of Engineers saved the day for many riverside communities that suffered severely in the 1955 floods.

The high water in New England put flood-control works in those states to the test. The Corps' division office in Boston said that the works built since 1955 made an excellent showing.

In the Thames River Basin the new Hodges Village Dam was pressed into flood-control operation even before the structure could be dedicated. The dam, finally dedicated April 8, proved its worth before that time by safeguarding the city of Webster, Mass., when the French River went into flood.

In the Blackstone Basin, the city of Woonsocket, R. I., was saved from the Blackstone River by the local protection works, which include a tainter gate dam and flood-bypass channel improvements.

The Corps jumped the gun for the third time since November at Worcester, Mass., when it put the Worcester Diversion Tunnel into service months ahead of the official dedication ceremonies.

The 4,200-ft-long, 16-ft-dia bore, scheduled for dedication in July, kept the business district high and dry when the West and Blackstone rivers threatened the city.

Hartford, Conn., in the Connecticut River Basin, weathered what the Corps labeled a 25-yr flood with earthworks to spare. The Corps says the city not only heeded its recommendations after the '55 floods, but ordered protective works built so high that "nothing short of a national disaster will ever flood out Hartford."

In the Susquehanna River Basin, the Baltimore District reports that flood-control projects prevented $17.5 million in flood damages to nine Pennsylvania communities.

Further south, in Florida, nearly $20 million in damages have occurred in the central and southwest areas of the state.

There was severe flooding over a 14-county area late last month—in some sections water won't return to normal for another two months.

The New York District Office says Binghamton, N. Y., was successfully protected by controlling the Whitney Point and East Sidney flood-control dams, both of which were 80% full during the recent snow-melt and spring flooding.

NEW YORK THRUWAY
Sorry
To Slow
You Up
Ahead of you is a six-mile stretch of the New York Thruway that did not meet the high construction standards required for this superhighway.
It is being reconstructed.

Contractor Must Rebuild Rejected Stretch of Road

The contractor who built parts of a six-mile stretch of the New York State Thruway Authority's Berkshire Section starts rebuilding it this week.

Union Building and Construction Corp., Passaic, N. J., is back at work on the largest piece of highway construction ever rejected by the New York State Department of Public Works, which acts as engineering agent for the Thruway Authority.

The contractor, working "under protest," will do work that is estimated to take four months. No official cost estimate has been released, but an unofficial guess puts it at about half a million dollars.

A court case is sure to follow.

The Thruway Authority says the section failed to meet specifications. There is excessive cracking of the concrete pavement slabs and some pumping is reported to have occurred. It is certain that a number of slabs will have to be replaced.

The contractor is expected to claim in court that engineering of the road, rather than his construction, was to blame.

Clarke & Rapuano, New York City consulting engineers, performed construction supervision for the DPW on the work.

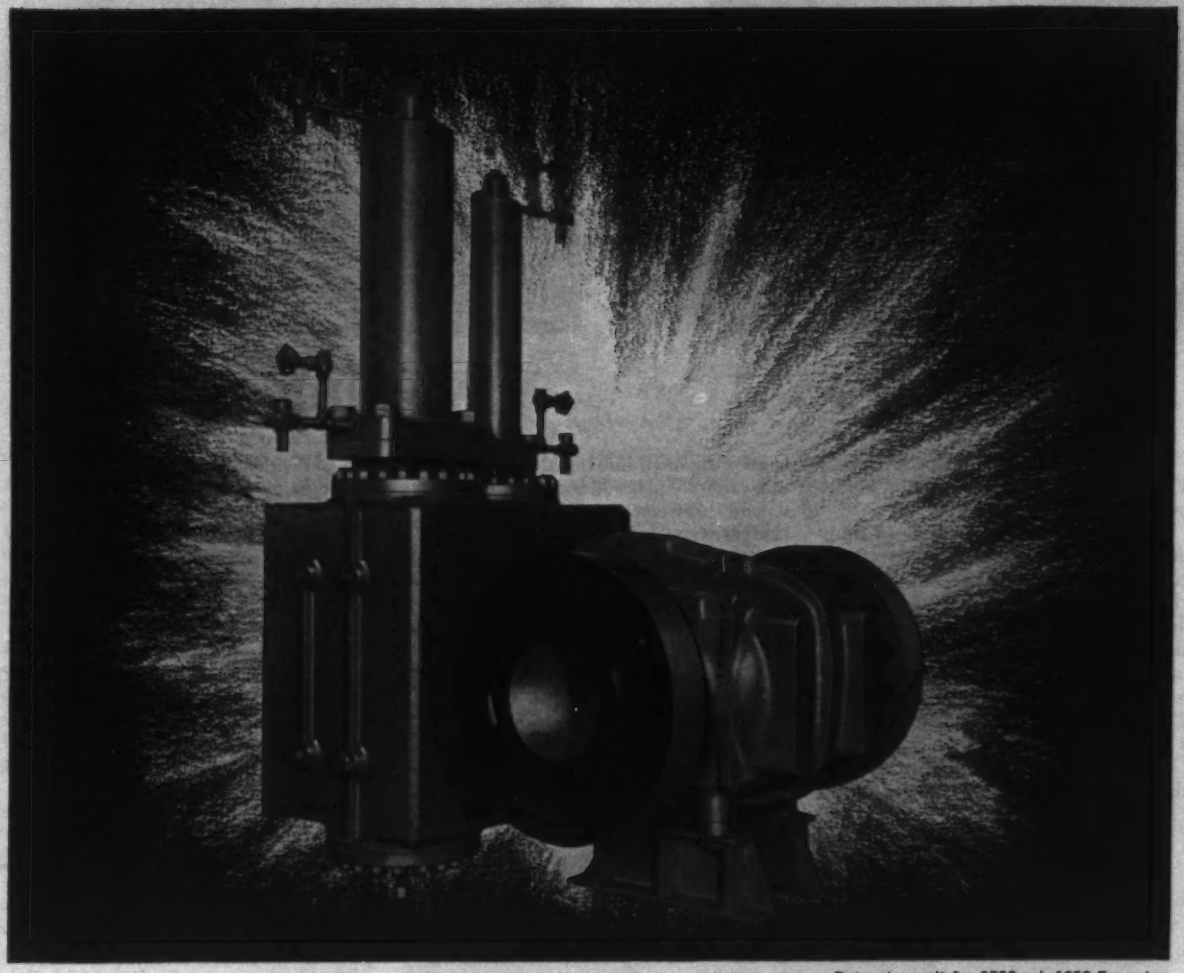
Union Building had constructed 7.4 miles under a $7,103,967 contract. The section was opened to traffic late in October, 1958.

Reconstruction will start on the two eastbound lanes, and traffic will be routed, on a two-way basis, over the two westbound lanes. Later, the converse will occur.

Thruway maintenance crews are building cross-overs to channel traffic into the proper lanes. Warning signs are posted along the Thruway approaching the section, and along the Massachusetts Turnpike, on the other side. And handbills (pictured) are being given to drivers at tollgates.

ALLIS-CHALMERS

A-1230



Rotovalve unit for 2700-psi, 1050 F service.

A must for nuclear reactor service . . . valves that

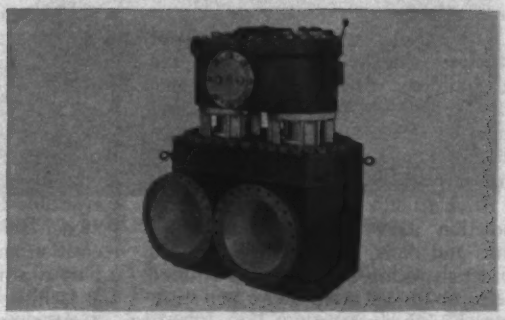
seat tighter with use

***Rotovalve* units accurately control or shut off** in high-temperature, high-pressure reactor applications. Units feature lantern ring with double packing, pressurized with the line fluid or purged to a bleed tank at lantern ring.

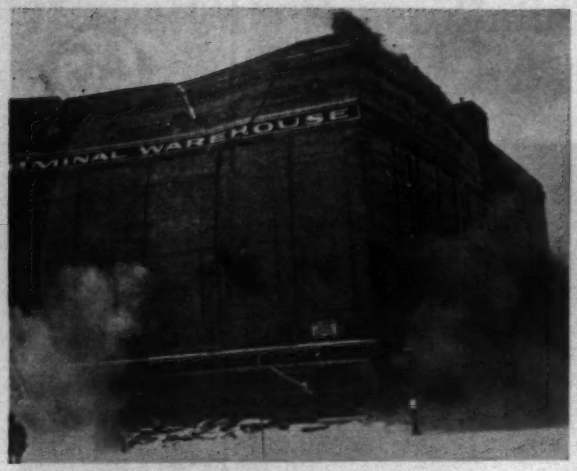
One example of current manufacturing is a 10-inch *Rotovalve* unit for operation at 2500 psi, 2500 F. Also being engineered is a 12-inch size for service at 4000 psi, 4000 F. Still another type combines a pair of valves within a single housing for use on dual, concentric pipes. Inner pipe carries 1400 F CO_2 to reactor; outer, 700 F CO_2 away from reactor.

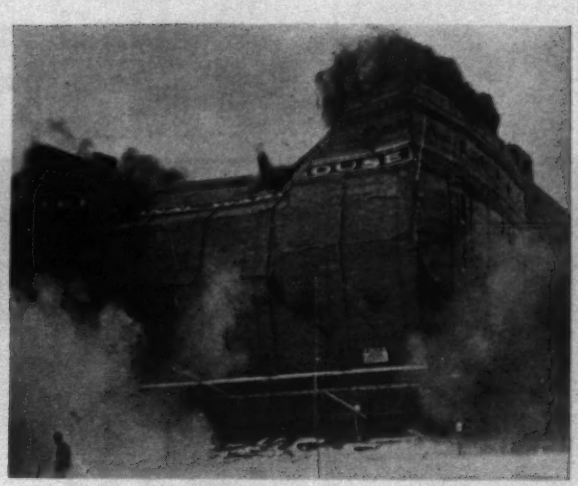
Your Allis-Chalmers representative can arrange reactor valving engineered to your specific requirements. He also supplies a complete line of butterfly valves, including models for air-lock valving. *Contact him for detailed information, or write* ***Allis-Chalmers,*** *Milwaukee 1, Wisconsin.*

Rotovalve is an Allis-Chalmers trademark.



Duplex Rotovalve unit features a single operator — controls 1200-psi, 600 F steam, or 1500-psi, 300 F air. Operator allows both valves to open simultaneously, or one to open while the other closes. Saves space vital where entire reactor unit must be enclosed in radiation-proof structure.





Going . . .

Going . . .

Jack Loizeaux uses explosives the way Van Cliburn uses the piano—a bit louder perhaps, but as delicately.

It took him just 14 seconds to bring down the warehouse above. Before you could count to fifteen, 625 separate charges of a high velocity gelatin did a demolition job that would have taken six to eight weeks with ordinary demolition methods. By the time the count reached twenty, Washington, D. C.'s Terminal Refrigeration Warehouse was a neat pile of rubble.

Basement and subbasement levels of the reinforced concrete building were laced with small individual charges fired in a carefully planned sequence by millisecond delay electric blasting caps. The charges were wired in 14 delay periods fired over an 11-second time span.

The 100x200-ft, six-story building came down to make room for an approach to the Theodore Roosevelt Bridge across the nearby Potomac River.

Twenty 14WF91 columns and 29 reinforced concrete columns—mostly 30 in. square—supported the building. The blasting not only cut the concrete columns cleanly, but also dismantled the steel columns neatly at splice points.

As a dividend, the charges on the steel columns popped the splice rivets and dropped the sections relatively intact without great distortion or twisting, further simplifying clearing and salvage work.

Mr. Loizeaux had no plans of the structure with which to outline the blasting operation. But the entire building—except an elevator core section—went down in the initial shot. It turned out that the structure was actually a composite building. The first portion was built in 1911, the other section in 1913. A heavily reinforced concrete

Architects Plan a Blast-Proof Town—

Can an industrial town be designed to survive a nuclear attack?

Cornell University's College of Architecture has been working on that problem for a year, concentrating on these objectives:

- Defend a computer plant from 20-megaton bombs.
- Protect a population of 9,000 persons from attack and keep them self sustaining during and after attack.

The most suitable blast-resistant structures, the architects decided, would be reinforced concrete vaults covered with earth. Assumed blast pressures could be withstood by one foot of adequately designed reinforced concrete topped by 5 ft of earth.

After studies based on blast, heat, radiation resistance of structural systems and costs, the architects decided to design within three miles of Ground Zero, or for an overpressure per structure of 35 lb per sq in.

The architects specify two techniques of protective construction; the plant is protected by installation in limestone; the town shelters and linking transportation system are protected by structures installed by the cut and cover system.

Major surface buildings are designed so that masonry shear walls will withstand a blast, while remaining walls and internal elements, constructed of light members, would be virtually swept away, to be reconstructed later.

The focal point of planning is the central business district. It is conceived as a pedestrian plaza with most major businesses laid out at its edges and with parking facilities beyond. No traffic penetrates the center.

A nearby central school complex is the site of the downtown shelters. All ground under the central school area is convertible to shelter use in a disaster period. Here are maintained feeding, recreation and living facilities, a clinic, a library, a museum and an auditorium and facilities for civil defense.

Cost estimates indicate construction for the protected structures would be three times more expensive than conventional construction. The 23,000-sq-ft electronic manufacturing plant would cost $18.5 million as a "hardened" structure, compared to $5.1 million for an ordinary above-ground plant —or $65.50 per sq ft compared to $18.00 per sq ft.

The three elementary schools would cost $26.30 per sq ft for hardened structures, $18.00 per sq ft for non-blast protected buildings.

Beneath the plaza is a unique "seatway" transit system connecting the plant with various residential areas. The seatway operates as a continuous belt among inter-connecting tunnels. "Trains" of eight to ten seats run at frequent intervals. The seat trains disengage from the belt at terminal points to permit passengers to enter or exit, then the seats are re-engaged.

Like all the facilities in the underground part of the city, the transportation system tunnels serve a dual purpose. In case of disaster the trains could be stopped, the seats dismantled and the corridors used for living space.

The planners eliminated the indi-

Going . . . Gone

wall, 36 in. thick, joined the two. Because building plans were not available in advance of the blast, this wall was treated as a standard interior wall and, as a result, it remained standing. A smaller shot the following day leveled it without difficulty.

The building's exterior walls were reinforced concrete, 32 in. thick, faced with a veneer of brick on the outside and an 8-in. layer of pressed cork insulation on the interior. What appears to be dense black smoke in the photos is actually cork insulation.

This is the fifth major building that Mr. Loizeaux, president of Burnbrae, Inc., Baltimore, has demolished by this method, and his safety record is impressive. "With this system, we don't have anybody working in a dangerous, half demolished building," he says.

According to officials of a major explosives company, Jack Loizeaux is the only dynamiter in the U.S. known to demolish major buildings in urban areas with a single firing. He also specializes in chimney felling with explosives and other work requiring a high degree of explosives control. Burnbrae has blasted hardened concrete out of a transit-mix truck without damaging the barrel.

On the terminal job, Mr. Loizeaux's firm was explosives subcontractor under ABC Demolition Corp., Arlington, Va., the general contractor who handled the removal of debris. The work was done for the Federal Land Redevelopment Agency.

Past experience has shown the dynamite razing technique to be about 30% cheaper than conventional methods. Concussion is negligible because of the spaced firing, and vibration has been measured with seismographs to be less than that caused by a passing truck.

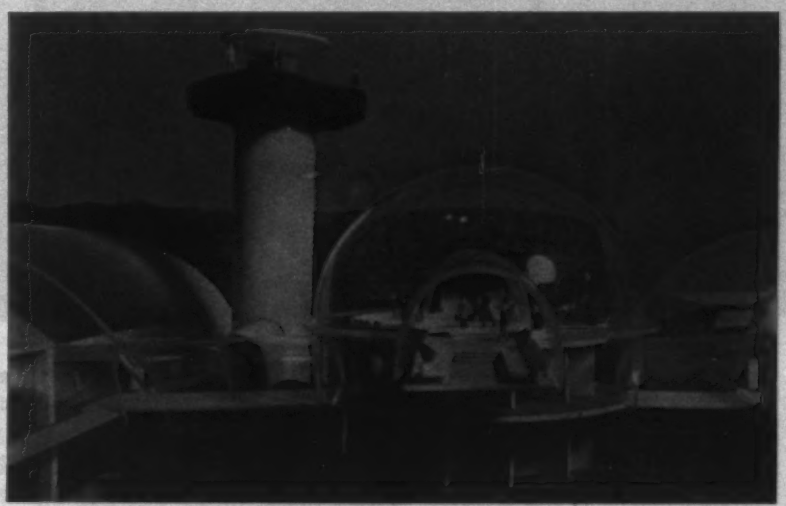
Underground

vidual shelter system because families might be separated at the time of an alert. Instead, there are a series of neighborhood shelters connected by subterranean corridors.

The underground complex would be completely air conditioned. It is designed to filter out particles of radioactive fallout material and to neutralize chemical warfare agents.

Wells drilled in the flood plain of Schoharie Creek (the model town is in New York's Schoharie County) indicate a flow of 150 gallons of water per minute, a reliable source for an atomic attack-protected community. The depth of the groundwater is such that more than two weeks would be required for radiologically contaminated surface water to enter the water source, claims the planning group.

Three protected storage reservoirs, each with 1 million gallon capacity, would be located strategically in the shelter network as an emergency source for 25 gallons per day, per capita.



"Bubble" entrances lead to subterranean transportation.

Representatives of American Machine and Foundry Co. assisted the Cornell group in making the detailed studies of structural elements. Other cooperating organizations in the project include: New York State Civil Defense Commission, Office of Civil and Defense Mobilization, International Business Corp., Buffalo Forge Co., New York State Department of Commerce, U. S. Naval Air Reserve, Floyd Bennett Naval Air Station, the Ford Foundation, and Office of the New York State Geologist.

Biggest man-built island

SEVEN miles off the coast of Louisiana, reaching 220 feet below and rising 60 feet above the Gulf of Mexico, is a massive steel island. It's the world's first offshore sulphur mining plant.

This mine is a project of the Freeport Sulphur Company, and is scheduled to open in 1960. Known as the *Grand Isle*, it will be one of the world's largest sulphur mining operations. The Frasch process will be used. Every day, 5 million gallons of sea water, heated to 325°F., will be injected into the underground sulphur deposit. Hot water melts it. Compressed air will force the liquid sulphur to the surface.

The Gulf of Mexico brews black storms. Vicious storms. But this mile-long structure is built to take the brutal pun-

lishment of the sea. From end-to-end, it's braced with tons of heavy-wall pipe from National Tube.

National Tube is also supplying casing, line pipe and standard pipe for the completion of this project. For more than 80 years, National Tube has handled tough tubular installations in the fields of line pipe, marine piping, mechanical tubing and oil country tubular products. Write us for assistance. National Tube Division, United States Steel, 525 William Penn Place, Pittsburgh 30, Pennsylvania.

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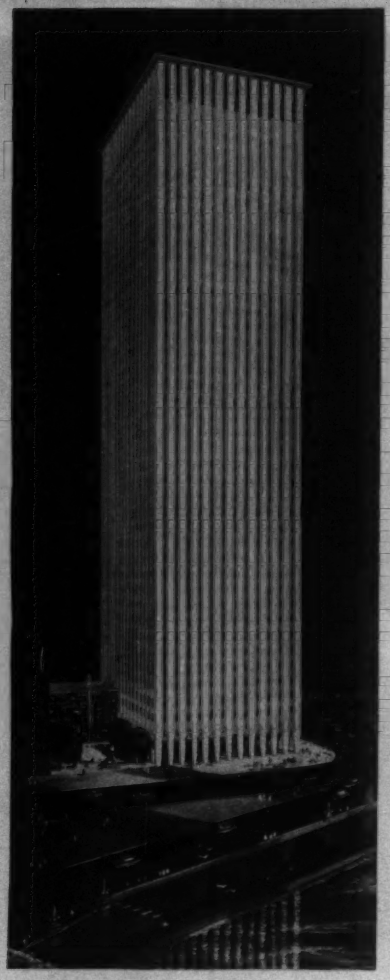

Construction Begins On Chicago Skyscraper

Construction begins this week on Chicago's newest skyscraper, a $22-million, 40-story office building rising 525 ft above street level.

Caissons, drilled 110 ft below street level to bedrock, will support the steel-framed structure. Marble-faced column shafts punctuate the exterior curtain walls. Spandrel facing at each floor consists of heat-strengthened glass backed with a fused color.

Floor framing will be steel deck with concrete fill.

Three underground floors will provide parking space for 125 cars. Sixteen high-speed elevators will serve tenants occupying the building's 500,000 sq ft of office space.

A landscaped plaza, featuring a pool that reflects a lighted fountain, will adjoin the building. It will be converted into an ice-skating rink in the winter.

Shaw, Metz & Associates is architect-engineer; A. L. Jackson Co., general contractor. United Insurance Co. of America is the owner.

Around the World . . .

• **Cool development**—High strength, alloy ice should be a major building material for future arctic and antarctic construction. Mixing glass fiber with the "raw material" raises its tensile strength from 200 to 2,000 psi; and tricks with alcohol—as a lubricant—improve fit of ice grains to raise its strength. So reports a research team at Massachusetts Institute of Technology.

• **Subways for safety?**—There's a campaign in Germany's Ruhr industrial area to build a huge subway system to link its 100 communities. Backers say it could also serve as an air-raid shelter for the area's 5 million inhabitants.

• **Turkish dam complete**—Turkey's $50-million Hirfanli hydroelectric project has started producing power. It took 5½ years to complete. Besides hydropower, the project also provides irrigation storage and flood control.

• **Want to buy a zoo?**—Depopulated, it's part of the latest assortment of real estate to be put on the block by the Corps of Engineers before filling a reservoir. The Corps is selling the zoo compound and 14 other structures in Blalock, Ore.—they're in an area to be flooded by John Day Dam, on the Columbia River.

• **Something fishy?**—James N. Rice is pondering the utilitarian aspects of his private dam and navigation lock. Mr. Rice was high bidder at $10,500 on U. S. Lock and Dam No. 1 on the Osage River at a General Services Administration auction. GSA says it will accept the offer. Mr. Rice says, "I like to fish."

• **Russian runaround**—Moscow is building an expressway that will completely encircle the city at a radius of 10 to 12 miles from the Kremlin. The 65-mile highway is scheduled for completion in 1964. Designers expect it to draw off most of the 70,000 cars and heavy trucks that pass through the city each day.

• **From smog to rubbish**—Prohibition of backyard incinerators has undoubtedly thinned Los Angeles' smog, but as the murk lifts a new problem is in the air. City Council has retained Black & Veatch, a Kansas City consulting engineer firm, to study the city's growing garbage disposal problem.

• **Training aides**—Public schools in Portland, Ore., have begun a post-high school civil-structural engineering technology training program for persons preparing for employment as engineering aides. The program offers a two-year curriculum.

• **Stadium plans**—New York City's Mayor Wagner last week unveiled a $14,000 plastic model of the proposed $15-million Flushing Meadows stadium for New York's entry in a third major baseball league. The mayor predicted approval of $450,000 engineering fees. Plans for a $9.5-million stadium for the Dallas-Ft. Worth team were announced last month.

• **Big expansion program**—Firestone Tire & Rubber Co. will spend $120 million in a world-wide construction and modernization program. Included in the program are: two tire factories now under construction in Canada and France and three synthetic rubber plants scheduled for construction in France, India, and Orange, Tex.

• **London hotel**—Hotelman Conrad Hilton's newest overseas venture is the $17-million, 27-story London Hilton. Charles Clore, British financier, is partner in the 506-room hotel venture.

• **Jacksonville auditorium**—Bids on construction of a $4.5-million city auditorium in Jacksonville, Fla., will be taken by June 1. A $2.5-million bond has been issued to Goldman, Sachs & Co. of New York City.

• **Tall towers in California**—The first construction phase of a $20-million, three-skyscraper development will begin this summer in southern California's San Fernando Valley. "Panorama Towers" will feature two 13-story reinforced concrete office buildings, one 20-story steel framed office structure, and parking facilities for 1,300 cars. Welton Beckett and Assoc., Los Angeles, are the architects and engineers. The Henry C. Beck Co. will be contractor.

• **Bid call**—Eugene Water & Electric Board, Eugene, Ore., plans a May 27 bid call for construction of its Carmen-Smith hydro project on the Smith and McKenzie rivers. Estimated cost of the 90,000-kw job is $25 million.

Where heavyweights move job records prove...

FIRESTONES PULL HAUL COSTS DOWN!

Take a tip from nationwide construction records—Firestones lower tire costs per job! Here's why: Firestone off-the-highway tire dependability plus Firestone's Giant Tire Service keeps expensive equipment on the job and *working*. Firestones are built with Firestone Rubber-X, the longest-wearing rubber ever used in Firestone tires. Firestone Shock-Fortified nylon cord is a natural for off-highway loads—holds impact damage to the minimum. And your Firestone Tire Expert will help you match tires to the job as well as handle all maintenance problems. Turn downtime into worktime with Firestone tires and service! Call your Firestone Dealer or Store today.

WHEN ORDERING NEW EQUIPMENT ALWAYS SPECIFY FIRESTONE TIRES

TUBELESS OR TUBED

Super Rock Grip Wide Base* | Super Rock Grip Deep Tread*

Firestone

BETTER RUBBER FROM START TO FINISH

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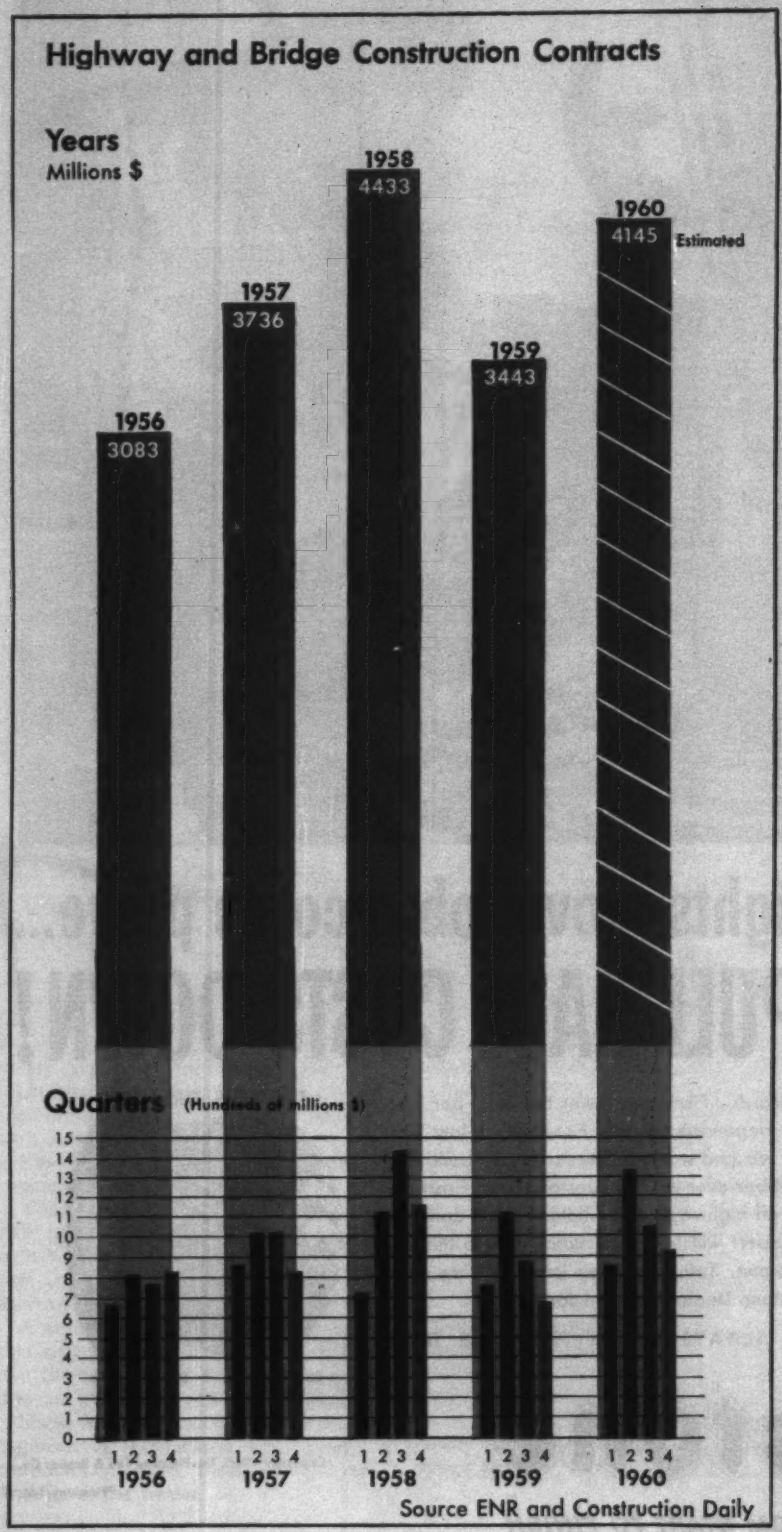
*Firestone T.M.

Highway Market Bounces Back:



Bouncing back from slowed-down, cut-back 1959, state highway and bridge construction awards will soar to near-record highs this year.

ENR's quarterly forecast for 1960 shows that the second quarter will be the second highest quarter ever, with the states expected to award about $1.33 billion in construction contracts. Record high was 1958's third quarter, with $1.43 billion.

And the remainder of the year will be strong, too. Expenditures during the third and fourth quarters will be topped only by the same quarters of 1958.

ENR forecasts a total of $4.145 billion in road and bridge construction awards for the year, including contracts let by toll authorities, municipalities, and counties.

State highway department award plans are, as usual, even more optimistic.

Contract awards for 1960 are expected to total $4.2 billion, according to reports to ENR from 49 states, the District of Columbia and Puerto Rico. Only state not divulging the information is New Jersey.

Total of planned expenditures for the year is up a whopping 26% over last year, and only slightly below precedent-setting 1958.

Every region, on the average, reports an increase in planned expenditures. The Middle Atlantic region leads the way (even without New Jersey) with an anticipated increase of 58.0%. This includes Pennsylvania's $175-million program, up a fantastic 181% over a year ago. Only Nevada shows a larger percentage increase, but with a spending scale not nearly as impressive.

A half-dozen highly populated states will show the greatest dollar increases. These are Michigan, up $143 million; Pennsylvania, up $113 million; Massachusetts, up $105 million; New York, up $74 million; California, up $60 million; and Missouri, up $54 million.

Other regional average increases are New England, 35%; South, 23%; Middle West, 18%; West of Mississippi, 14%; and Far West (including Hawaii and Alaska), 42%.

A dozen states report either no change in total expenditures from last year, or decreases. Largest percentage drop-offs are predicted in Vermont and Connecticut, with 36% and 23% decreases, respectively.

Poorest prospects—on a regional basis—for a good year exist in a group of big-money midwestern states—Indiana, Illinois, Wisconsin and Minnesota,

Near-Record Year, Starting Now

A Longer Look: State Highway Contract Plans, 1960-'65

State Highway Department Construction Contracting Plans
Reported to Engineering News-Record. Figures in thousands of dollars.

State and Region	This Year: Let 1959	This Year: Planned 1960	Change '59-'60 %	Long-Range Contracting Plans: 1961 $	1962 $	1963 $	1964 $	1965 $
U S TOTAL*	$3,336,898	$4,210,665	+ 26					
Maine	$15,100	$20,100	+ 33	$20,000	$21,000	$24,000	$25,000	$26,000
New Hampshire	19,444	22,000b	+ 16	24,000a	na	na	na	na
Vermont	31,150	24,100	− 23	27,000	27,000	27,000	27,000	27,000
Massachusetts	90,888	175,000	+ 93	230,000	230,000	200,000		
Rhode Island	5,598	13,300	+138	11,900	18,600	18,600	18,600	18,600
Connecticut	53,321	34,000	− 36	132,000	na	na	na	na
NEW ENGLAND	315,191	289,500	+ 26					
New York	236,100	200,000	+ 23	200,000	200,000	200,000	200,000	200,000
New Jersey	d.w.	d.w.		d.w.	d.w.	d.w.	d.w.	d.w.
Pennsylvania	68,233	175,000	+161	167,000	186,000	186,000	186,000	186,000
Maryland	84,500	67,000d	+ 23	66,000a	78,000a	78,000a	78,000a	78,000a
Dist. of Columbia	31,500	30,310	+ 41	21,400	38,100	37,000	37,000	36,000
Delaware	9,010	17,200	+ 91	24,000	28,000	37,000	38,000	36,000
MIDDLE ATLANTIC	373,343	689,510	+ 85					
Virginia	92,000	140,000	+ 52	160,000	na	na	na	na
West Virginia	28,044	55,164	+ 97					
North Carolina	60,000	60,000	0	60,000	na	na	na	na
South Carolina	66,834e	62,000e	− 7	65,000e	65,000e	65,000e	65,000e	65,000e
Georgia	64,076	100,000	+ 56	100,000	110,000	106,000	106,000	110,000
Florida	119,000	128,000	+ 7	na	na	na	na	na
Alabama	63,056	81,000	+ 28	100,000	100,000	100,000	100,000	100,000
Mississippi	47,796	53,400	+ 12	53,000	53,000	53,000	53,000	53,000
Louisiana	85,117	90,000	+ 2	100,000	90,000	90,000	90,000	90,000
Kentucky	62,800	72,000	+ 15					
Tennessee	68,277	109,000	+ 57	107,200	107,200	106,000	106,000	106,000
SOUTH	744,060	913,564	+ 23					
Ohio	282,216	295,000	+ 5	260,000	260,000	260,000	260,000	260,000
Indiana	80,453	71,000	− 12	71,000	71,000	71,000	71,000	71,000
Illinois	304,500	302,000	− 1	200,000	200,000			
Wisconsin	69,358	63,135	− 9	62,000	61,000	60,000	60,000	60,000
Michigan	131,498	275,000	+109	235,000	130,000	105,000	105,000	105,000
MIDDLE WEST	767,901	906,135	+ 18					
Minnesota	82,500	68,000	− 18	69,000	70,000	71,000	72,000	72,000
Iowa	72,000	83,000	+ 15	84,499	86,344	86,343		
Missouri	74,444	128,500e	+ 72	63,000a	100,000a	100,000a	100,000a	100,000a
Arkansas	41,000	40,000	− 2	42,000	44,000	45,000	45,000	45,000
North Dakota	35,500	30,500	− 14	33,000	38,000	40,000		
South Dakota	26,332	24,200	− 8					
Nebraska	32,328	46,000	+ 43	40,000	41,000	42,000	43,000	44,000
Kansas	50,023	56,000	+ 9	69,000	69,000	69,000	70,000	72,000
Oklahoma	24,904	50,500	+ 87	52,000	54,000	56,000	57,000	57,000
Texas	281,451	253,000	− 10	280,000	250,000	250,000	250,000	250,000
Montana	20,152	43,000	+113					
Wyoming	24,058	39,329	+ 63	33,979	33,979	33,979	33,979	33,979
Colorado	33,200	42,000	+ 27	42,000				
New Mexico	21,797	32,000	+ 47	33,000	35,000	37,000	39,000	41,000
MISSISSIPPI TO ROCKIES	833,796	947,029	+ 14					
Idaho	17,300	30,400	+ 76	32,300	24,000	26,800	29,100	31,400
Utah	25,700	37,100	+ 29	46,000	na	na	na	na
Arizona	38,000	39,000	+ 3	39,000	38,000	38,000	38,000	38,000
Nevada	7,350	25,000	+240	25,000	22,000	30,000	34,000	34,000
Washington	47,341	60,000	+ 27	60,000	65,000	65,000	65,000	65,000
Oregon	37,296	56,000	+ 47	43,000	45,000	44,500	47,500	47,500
California	220,000	280,000	+ 27	280,000	310,000	315,000	320,000	326,000
Alaska	4,143	32,302	+680	35,000	40,000	40,000	40,000	40,000
Hawaii	7,107	15,204	+114	2,067	4,998g	4,998g	7,653g	1,526g
FAR WEST	409,236	574,007	+ 42					
Puerto Rico (f)	8,000	21,000	+144	21,000	18,000	18,000	18,000	18,000

*d.w. Data withheld. na Not available
a Fiscal year. b Calendar 1960. Fiscal '60 is $25 million. c Incl right-of-way, engineering and contingencies. d Calendar 1960. Fiscal '60 is $63 million.
e Calendar 1960. Fiscal '60 is $64 million. f Not included in US total. g Program may be accelerated if Hawaii is included in the Interstate program as provided by legislation now in Congress.

and Texas—with anticipated decreases from 1% to 18%.

Variation in spending plans across the country probably reflects the degree to which each state has utilized federal funds in the past. States that were farthest ahead now show some slow-up; states that were lagging behind now are catching up. Part of this, of course, is due to controlled expenditures on the Interstate system brought about by the Bureau of Public Roads' reimbursement planning.

Contract controls imposed by BPR last August sharply curtailed work in the last six months of the year. The currrent upswing reflects fiscal 1960's unbalanced obligation schedule—12% during the final quarter of 1959, but 33% during each of this calendar year's first two quarters. Anticipated in the states' reports is a return to a more normal 25% per quarter for fiscal 1961.

All categories of roads show an increase in 1960 over 1959. Biggest increase is on the Interstate System, 33%. But the ABC systems also show a healthy 28% rise in expenditures.

Increases in ABC expenditures reflects a determination to maintain a

. . . States will spend more in 1960—

State Highway Construction Contracting Plans for 1960—By System

State and Region	Interstate Contracts Scheduled 1960	Interstate Contracts Let 1959	Chge. '59–'60 %	ABC Contracts Scheduled 1960	ABC Contracts Let 1959	Chge. '59–'60 %	100% State Roads Scheduled 1960	100% State Roads Let 1959	Chge. '59–'60 %
US TOTAL*	$1,927,303	$1,448,387	+ 33	$1,757,891	$1,377,081	+ 28	$534,801	$513,170	+ 4
Maine	$10,000	$9,000	+ 11	$9,600	$5,700	+ 68	500	$400	+ 25
New Hampshire	12,000	12,712	− 6	7,000	5,576	+ 26	4,000	1,156	+246
Vermont	18,000	23,000	− 22	6,000	8,000	− 25	100	150	− 33
Massachusetts	110,000	48,285	+128	55,000	32,188	+ 71	10,000	10,425	− 4
Rhode Island	5,500	737	+646	6,800	4,169	+ 63	1,000	362	+176
Connecticut	15,000	26,521	− 43	16,200	24,091	− 33	2,800	2,719	+ 3
NEW ENGLAND	170,500	120,255	+ 42	100,600	79,724	+ 26	18,400	15,212	+ 21
New York	102,000	77,700	+ 31	150,000	121,900	+ 30	30,000	28,500	+ 47
New Jersey	d.w.	d.w.	.....	d.w.	d.w.	.....	d.w.	d.w.	.....
Pennsylvania	84,000	17,629	+376	66,000	23,511	+181	25,000	21,093	+ 19
Maryland	38,500	26,000	+ 48	18,500	18,500	0	10,000	10,000	0
Dist. of Columbia	16,800	11,000	+ 53	9,900	8,500	+ 16	3,610	2,000	+ 81
Delaware	6,700	5,000	+ 34	7,000	2,500	+180	3,500	1,510	+132
MIDDLE ATLANTIC	248,000	137,329	+ 81	260,400	174,911	+ 49	81,110	61,103	+ 33
Virginia	80,000	58,000	+ 38	50,000	32,000	+ 56	10,000	2,000	+400
West Virginia	18,278	15,198	+ 20	16,586	13,238	+ 25	300	605	− 51
North Carolina	27,000	30,000	− 10	30,000	27,000	+ 11	3,000	3,000	0
South Carolina	20,000	31,314	− 36	22,800	20,381	+ 12	10,000	15,139	− 34
Georgia	45,000	32,013	+ 41	40,000	19,572	+104	15,000	12,491	+ 20
Florida	50,000	42,600	+ 17	35,000	34,000	+ 3	35,000	36,000	− 3
Alabama	40,000	27,484	+ 46	33,000	28,661	+ 15	8,000	6,893	+ 16
Mississippi	21,500	21,389	+ 1	29,400	23,116	+ 25	2,500	2,791	− 10
Louisiana	48,000	27,944	+ 72	25,000	34,160	− 27	17,000	26,013	− 35
Kentucky	25,000	15,400	+ 62	22,000	20,000	+ 10	25,000	27,400	− 9
Tennessee	57,800	28,165	+105	36,200	17,361	+109	15,000	12,751	+ 18
SOUTH	432,578	329,507	+ 31	339,986	269,489	+ 26	140,800	145,088	− 3
Ohio	140,000	112,700	+ 24	84,000	124,700	− 33	71,000	44,816	+ 58
Indiana	26,000	48,772	− 47	42,000	28,051	+ 50	3,000	3,600	− 17
Illinois	111,300	107,400	+ 4	78,500	82,000	− 4	12,200	15,100	− 19
Wisconsin	21,600	26,424	− 18	30,000	27,339	+ 10	11,535	15,590	− 26
Michigan	134,300	57,276	+134	130,400	55,233	+136	10,300	18,990	− 46
MIDDLE WEST	433,200	352,572	+ 23	364,900	317,323	+ 15	108,035	98,096	+ 10
Minnesota	21,000	40,000	− 47	42,000	35,000	+ 20	5,000	7,500	− 33
Iowa	23,000	32,000	− 28	35,000	18,000	+ 94	25,000	22,000	+ 14
Missouri	74,300	31,742	+134	47,600	40,732	+ 17	6,600	1,970	+235
Arkansas	26,000	23,229	+ 12	13,950	17,613	− 21	50	164	− 70
North Dakota	10,500	18,396	− 43	19,500	15,900	+ 23	500	1,284	− 61
South Dakota	14,360	12,198	+ 18	18,300	21,585	− 15	1,600	2,549	− 37
Nebraska	20,000	8,197	+144	28,000	23,269	+ 20	.....b	562	.....
Kansas	19,000	13,782	+ 38	30,000	30,192	− 1	6,000	6,969	− 14
Oklahoma	22,000	12,523	+ 76	27,300	14,263	+ 91	1,200	208	+477
Texas	70,000	89,075	− 21	120,000	121,197	− 1	63,000	71,210	− 12
Montana	23,600	8,825	+167	19,400	11,327	+ 71	0	0	0
Wyoming	25,565	11,360	+134	10,464	11,055	− 5	2,300	1,643	+ 40
Colorado	9,300	10,300	− 10	17,100	11,300	+ 48	5,600	4,600	+ 22
New Mexico	18,000	9,311	+ 93	13,000	11,405	+ 14	1,000	1,081	− 7
MISSISSIPPI TO ROCKIES	377,625	320,918	+ 18	451,614	389,539	+ 16	117,850	122,039	− 3
Idaho	18,500	10,500	+ 76	11,000	5,800	+ 90	900	1,000	− 11
Utah	18,200	16,800	+ 8	13,000	10,000	+ 30	5,900	1,900	+211
Arizona	22,000	22,000	0	12,000	12,000	0	5,000	2,000	+150
Nevada	14,000	2,030	+590	11,000	5,320	+107	0	0	0
Washington	35,000	26,478	+ 32	25,000	16,880	+ 18	na	3,983	.....
Oregon	27,700	19,998	+ 39	22,300	15,012	+ 49	5,000	2,285	+119
California	130,000	90,000	+ 44	100,000	70,000	+ 43	50,000	60,000	− 17
Alaska	c	c	.....	31,393	3,933	+698	1,000	210	+376
Hawaii	c	c	.....	14,698	6,851	+115	506	256	+ 98
FAR WEST	265,400	187,806	+ 41	240,391	145,796	+ 65	68,306	71,634	− 5
Puerto Rico (a)	c	c	.....	17,500	7,500	+133	3,500	1,100	+218

*d.w. Data withheld *n.a. Not available *a Not in U S total *b Amount will depend on ABC federal aid contract control *c Has no interstate system

balance in improvement of the primary federal-aid system, its urban extensions, and the federal-aid secondary system.

Surprisingly enough, in view of oft-quoted views that non-federal-aid systems are being neglected, the states plan to increase expenditures on wholly state financed highways and bridges by 4%. Expenditures on this class of highway vary considerably from state to state—from an increase of 477% in Oklahoma to reported decreases of 70% in Arkansas and 61% in North Dakota.

Maintenance expenditures will be up an average of 8% across the board to a total volume of $730 million. Michigan anticipates lower maintenance expenditures in 1960.

As in the past, the vast bulk of maintenance work will be done by the highway department's own forces. Volume of maintenance by contract continues to grow slowly, but remains less than 10% of that done by force account. Contract maintenance is expected to be up slightly, from $61 million to $64 million.

Individual shifts in maintenance philosophy define no particular trend. About two-thirds of the states do some contract maintenance, and the amount is slowly increasing.

Planned new equipment purchases are up sharply from a year ago, an average of 19%. Figures are extremely variable, with reported increases as high as 322% (Alabama) and with at least one state (Kentucky) reporting that it will buy no new equipment this year.

Use of consultants in the highway program continues to decrease. The states report plans to pay only $44 million for consulting services in 1960 in comparison with more than $64 million in 1959, a drop of 31%.

except for engineering consultants

State Highway Spending Plans for 1960

State and Region	. . . Maintenance: By Own Forces 1960	By Own Forces 1959	By Own Forces Chge. '59-'60 %	By Contract 1960	By Contract 1959	By Contract Chge. '59-'60 %	. . . New Equipment 1960	New Equipment 1959	New Equipment Chge. '59-'60 %	. . . Consulting Services 1960	Consulting Services 1959	Consulting Services Chge. '59-'60 %
U S TOTAL*	$729,944	$675,290	+ 8	$64,384	$61,018	+ 6	$68,509	$57,582	+ 19	$44,567	$64,575	−31
Maine	13,300	13,000	+ 2	100	100	0	900	1,000	− 10	700	900	− 22
New Hampshire	7,200	6,750	+ 7	1,300	1,250	+ 4	800	675	+ 19	600	574	+ 5
Vermont	5,800	5,149	+13	200	137	+ 46	400	432	− 7	.....	.....	.....
Massachusetts	10,000	8,496	+18	1,500	1,432	+ 5	500	278	+ 80	.....	.....	.....
Rhode Island	4,000	3,500	+14	.....	.....	.....	1,000	71	+1,308	520	340	+53
Connecticut	16,000	15,797	+ 1	250	110	+127	800	700	− 14	na	na	.....
NEW ENGLAND	56,300	52,685	+ 7	3,350	3,029	+ 11	4,200	3,156	+ 33	1,820	1,814	+ 0.3
New York	37,000	36,300	+ 2	8,000	7,700	+ 4	2,000	1,900	+ 5	3,500	4,000	−13
New Jersey	d.w.	d.w.	.....	d.w.	d.w.	.....	d.w.	d.w.	.....	d.w.	d.w.	.....
Pennsylvania	71,260	68,237	+ 4	934d	795d	− 22	7,420	2,645	+181	10,508	8,980	+17
Maryland	10,500	9,500	+11	0	0	0	575	525	+ 10	1,000	1,500	−33
Dist. of Columbia	843	810	+ 4	888	869	+ 2	199	197	+ 1	106	1,410	−92
Delaware	4,000	3,909	+ 2	0	0	0	400	580	− 31	500	500	0
MIDDLE ATLANTIC	124,103	119,356	+ 4	9,512	9,364	+ 2	10,594	5,847	+ 81	15,612	16,390	− 5
Virginia	6,000	5,000	+20	4,000	3,000	+ 33	250	100	+ 56	0	5,000	−100
West Virginia	20,716	20,740	+29	.....	760	.....	2,250	2,244	+ 0.3	.....	3,886	.....
North Carolina	47,000	46,500	+ 1	0	0	0	3,000	3,500	− 14	100	100	0
South Carolina	11,750	10,873	+ 8	3,700	3,100	+ 19	1,785	1,708	+ 5	.....	.....	.....
Georgia	11,000	9,758	+13	.....	326	.....	1,500	1,125	+ 33	0	0	0
Florida	14,000	13,000	+ 8	250	200	+ 25	.....	1,250	.....	.....	.....	.....
Alabama	8,500	7,536	+13	na	na	.....	4,000	947	+322	500	300	+67
Mississippi	6,300	5,622	+12	0	0	0	500	227	+120	60	46	+30
Louisiana	19,000	18,500	+ 3	600	600	0	1,500	1,500	0	100	916	−89
Kentucky	29,000	26,000	+12	.....	.....	.....	0	2,000	−100	1,000	2,700	−63
Tennessee	11,000	11,000	0	0	0	0	1,000	1,000	0	3,000	3,162	− 5
SOUTH	190,266	174,529	+ 9	8,550	7,986	+ 7	15,785	15,661	+ 1	4,760	16,110	−70
Ohio	31,500	29,523	+ 7	2,000	2,057	− 3	2,750	1,512	+182	.....	.....	.....
Indiana	16,700	16,772	− 0.4	2,000	1,614	+ 24	800	735	+ 9	4,000	4,450	−10
Illinois	28,363	26,566	+ 7	2,300	1,943	+ 12	2,833	1,982	+ 33	7,450	5,866	+27
Wisconsin	17,000	16,550	+ 3	540	539	+ 0.1	0	0	0	100	445	−78
Michigan	11,500	10,010	+15	16,000	18,080	− 12	768	335	+129	3,850	4,276e	−10
MIDDLE WEST	105,063	99,421	+ 6	22,740	24,253	− 6	6,953	4,564	+ 52	15,400	15,037	+ 2
Minnesota	13,000	13,130	− 1	1,500	1,350	+ 11	2,100	1,850	+ 13	1,200	1,945	−38
Iowa	11,239	10,990	+ 5	1,701	1,637	+ 5	2,312	1,840	+ 26	1,200	1,200	− 8
Missouri	24,950	22,794	+ 9	3,000	2,900	+ 15	2,000	2,064	− 3	400	395	+ 1
Arkansas	12,250	11,697	+ 5	500	500	0	700	730	− 4	182	303	−40
North Dakota	4,774	3,480	+37	1,348	917	+ 47	670	381	+ 76	75	75	0
South Dakota	3,750	3,723	+ 1	1,300	1,035	+ 29	700	502	+ 39	0	0	0
Nebraska	7,545	7,236	+ 8	750	585	+ 28	900	799	+ 13	380	283	− 1
Kansas	14,770	13,093	+13	2,500	2,249	+ 11	1,399	1,147	+ 22	23	895	−97
Oklahoma	5,000	2,600	+92	1,400	950	+ 48	2,000	1,107	+ 81	850	1,259	−32
Texas	48,949b	45,447c	+ 3	0	0	0	6,050b	5,794c	+ 6	0	35	−100
Montana	7,500	7,364	+ 2	500	600	− 17	500	500	0	70	0	.....
Wyoming	3,823	4,045	− 6	675	0	.....	500	934	− 46	15	13	+15
Colorado	8,000	7,300	+10	500	500	0	1,000	1,000	0	0	350	−100
New Mexico	9,200	8,057	+14	1,300	1,121	+ 16	1,000	447	+124	650	550	+18
MISSISSIPPI TO ROCKIES	173,082	160,698	+ 8	17,032	14,033	+ 21	21,831	19,015	+ 15	5,035	7,286	−31
Idaho	6,200	5,600	+11	1,000	1,000	0	150	150	0	90	80	+13
Utah	5,100	4,900	+ 4	0	0	0	1,200	1,100	+ 9	980	1,400	−31
Arizona	4,000	4,000	0	.....	.....	.....	240	248	− 4	500	2,200	+77
Nevada	3,700	3,500	+ 6	0	0	0	526	506	+ 4	400	650	−38
Washington	10,000	10,398	+ 2	400	400	0	1,050	900	+ 17	0	0	0
Oregon	11,550	11,413	+ 1	200	101	+ 98	1,940	2,011	− 4	0	0	0
California	33,000	30,800	+ 4	900	800	+ 13	3,400	4,400	− 23	0	0	0
Alaska	6,000	.....	.....	.....	.....	.....	600	.....	.....	0	3,003	−100
Hawaii	2,008	1,700	+18	700	60	+1,067	40	22	+ 82	0	0	0
FAR WEST	81,158	73,300	+12	3,200	2,361	+ 36	9,146	9,339	− 2	1,950	7,933	−75
Puerto Rico (a)	4,700	4,400	+ 7	.....	.....	.....	233	200	+ 17	1,300	300	+330

*d.w. Data withheld *n.a. Not available *a Not included in US total *b Fiscal year ending Aug. 31, 1960 *c Fiscal year ending Aug. 31, 1959 *d Bridge painting *e Fiscal year ending June 30, 1959

This continues a trend that became obvious two years ago. Total expenditure for consulting services in 1958 was about $75 million (ENR Apr. 23, 1959, p. 102). Except on the Pacific Coast, most states still use consultants to help absorb peak design loads.

Outside criticism of consultants in the highway program and strengthened highway departments have apparently been principal factors in the decline.

Notable exceptions to the trend are Illinois and Pennsylvania. Both states plan to increase their expenditures for consulting services this year.

For the first time, ENR asked the states to provide estimates of highway spending over the next five years, 1961 through 1965.

Reflecting general uncertainty over financing of the federal portion of the Interstate system, most states expect highway expenditures to level off after this year. Anticipated annual expenditures are roughly equal to the 1960 level. But most states consider it too early to predict changes beyond 1961.

Scheduled for next year is a full-scale congressional review of the federal-aid highway program. Key factor will be BPR's report on the Highway Cost Allocation Study, due in January. Attention will be given to the basic concepts of highway financing and taxation, the Interstate System, and the role the federal government should play in the development of highway transportation.

Adding to general uncertainty over the outlook for highway financing in the years ahead are the activities of various investigative committees and teams. Their findings are certain to have an effect on future highway spending.

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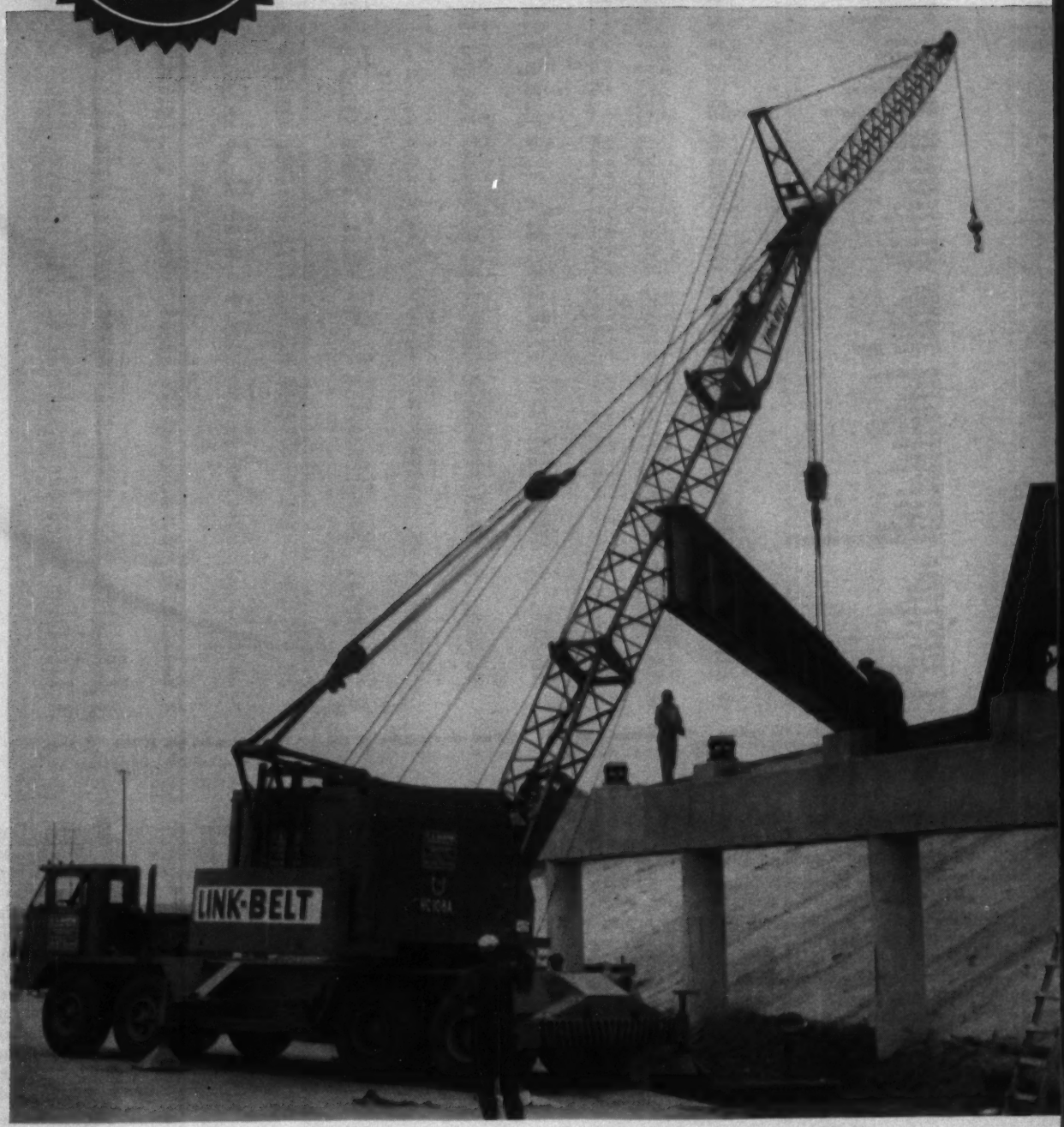

from base to boom

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Mariakerke Bridge towers are independent of the roadway and its connections with the pier.

Suspended Span Is Prestressed

A novel prestressed concrete bridge spanning a canal at Mariakerke, near Ghent, Belgium, a self-anchored suspension bridge, has been opened to traffic.

Basically the design is that of a three-span continuous beam with unreinforced concrete stiffeners and the prestressing cables located outside (above) the beam.

"**Compared with a conventional prestressed concrete beam, this type of beam has two advantages,**" says the designer, Daniel C. C. Vandepitte, an associate professor at the University of Ghent (ENR Aug. 8, 1957, p. 23).

- "It is in fact a beam prestressed by a cable that has a large eccentricity, and large eccentricities are in order when spans are long.
- "The live-load moments in the prestressed suspended beam are smaller than those in a conventional prestressed beam, because there is interaction between the cable and the beam, as in the case of an ordinary suspension bridge. When live load deflects the beam, the suspenders force the main cable to deflect also, hence to lengthen and to increase its tension. This means that the cable directly carries part of the live load, thus partly relieving the beam. The importance of this effect increases with the span length.

"**. . . this kind of structure is useful only for crossings of sufficiently long span.**"

As compared with the conventional steel suspension bridge, this design has the drawbacks of falsework, heavier piers and towers, and larger pier foundations, says Professor Vandepitte. But, he points out, it has the advantages of a cheaper deck, no costly anchorages, very little maintenance and much more rigidity. Provided the spans are not too long, the designer believes, the prestressed concrete bridge costs less than its steel counterpart. He suggests a limiting economic length of about 1,000 ft.

The Mariakerke bridge has a total length of 590 ft, with three suspended spans. The center span is 328 ft long and the two end spans are 131 ft. The bridge deck is 60 ft wide.

The suspension cable is composed of 2,070 galvanized steel wires, each of 0.20 in. dia. The wires are parallel and form a 10-in.-dia cable. The main suspension cables on either side of the superstructure are part of one endless cable that loops around the two ends of the bridge deck. At the ends the 2,070-wire cable divides into three 690-wire cables. Each 690-wire cable is placed in a curved conduit, which in turn bears against the deck end. Splicing of individual wires is done by wrapping overlapping ends with fine wire.

Clamps on the suspension cables are two semi-circular steel castings bolted together. Workmen tighten the clamp bolts with a torque wrench to develop sufficient friction between the cable and the clamp to prevent the clamp from slipping towards the lowest point of the cable curve. Suspenders are flat eye bars, pin-connected to the cable clamps and to the concrete floor beams. Cable clamps are located on parabolas.

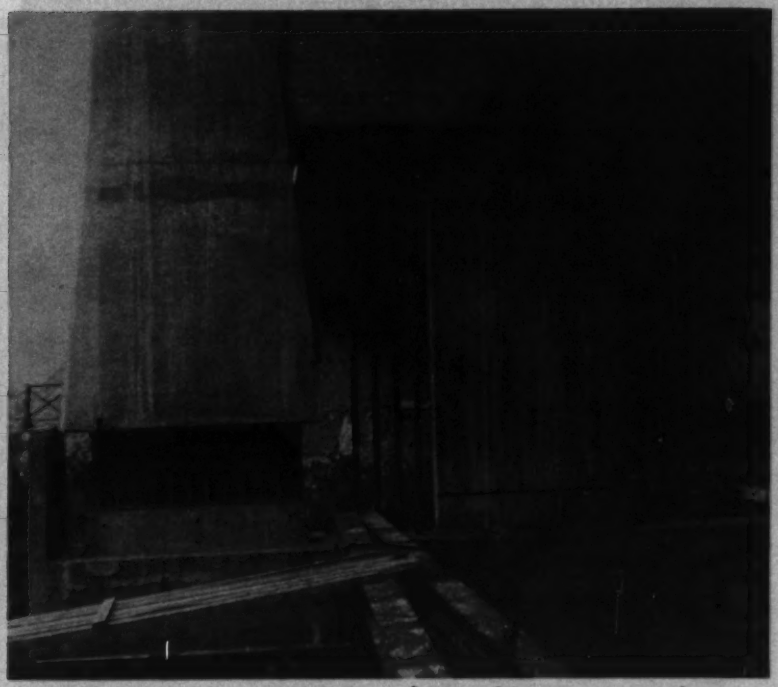
The two stiffening girders are continuous over the interior supports and have a constant depth of 7 ft 10 in. Transverse floor beams are simply reinforced.

The reaction at the abutments is upward on this type of bridge. The upward force is counteracted by the weight of the abutment, which is a large reinforced concrete box filled with sand. The superstructure is connected to one abutment by a hinge made of crossed anchor bars and acting as a fixed bearing. At the other end, eye bars make a pinned connection that allows the superstructure to contract and expand freely.

Two different kinds of connections between the piers and the roadway were used (see drawing). This was necessary because the reaction at the piers may be either upward or downward, depending on the absence or presence of live load on the bridge deck. One of the connections is designed to resist compression, the other, tension.

The contractor cast the concrete towers and their bracing in a position

Suspenders are flat eye-bars.



Hinges support towers; pier ties take tension or compression.

Concrete

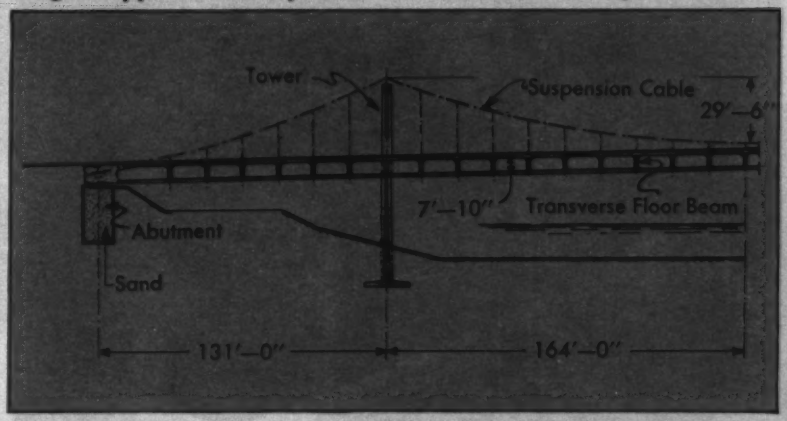
about 2 ft 4 in. below their final location. He then built up the endless cable by placing the untensioned wires, one by one, around the ends of the bridge, in the cable clamps, and over the saddles on top of the towers.

Workmen prestressed the entire superstructure by jacking up the towers alternately in pairs. They used 300-ton hydraulic jacks, eight under each column. Raising the columns forced the cable to elongate, since it is connected to the roadway at the ends of the bridge and by the suspenders. Total prestressing force was about 12.3 million lb.

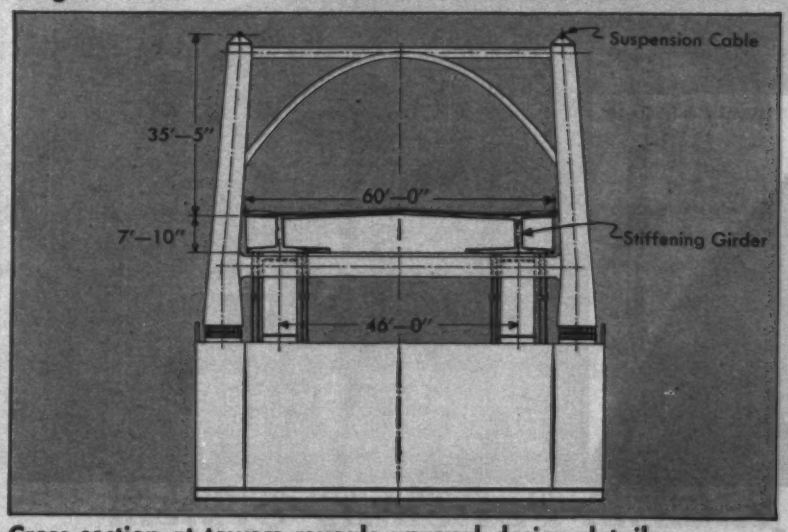
After raising each column to its final position, workmen inserted a cast-steel hinge under it, between the jacks. When the jacks were removed, the hinges became permanent supports for the columns. The elevation of the roadway above the piers was not affected by the prestressing operation, since each frame—the columns and their bracing—is independent of the roadway and its connections with the pier.

Before prestressing, the suspenders were inclined from the vertical. During prestressing, each suspender came to the final desired vertical position. Engineers maintained a careful watch on the forces produced during prestressing, as a check on the design and to insure proper action of the structure.

The initial cable curve was concave



Longitudinal section shows sand-filled concrete abutment.

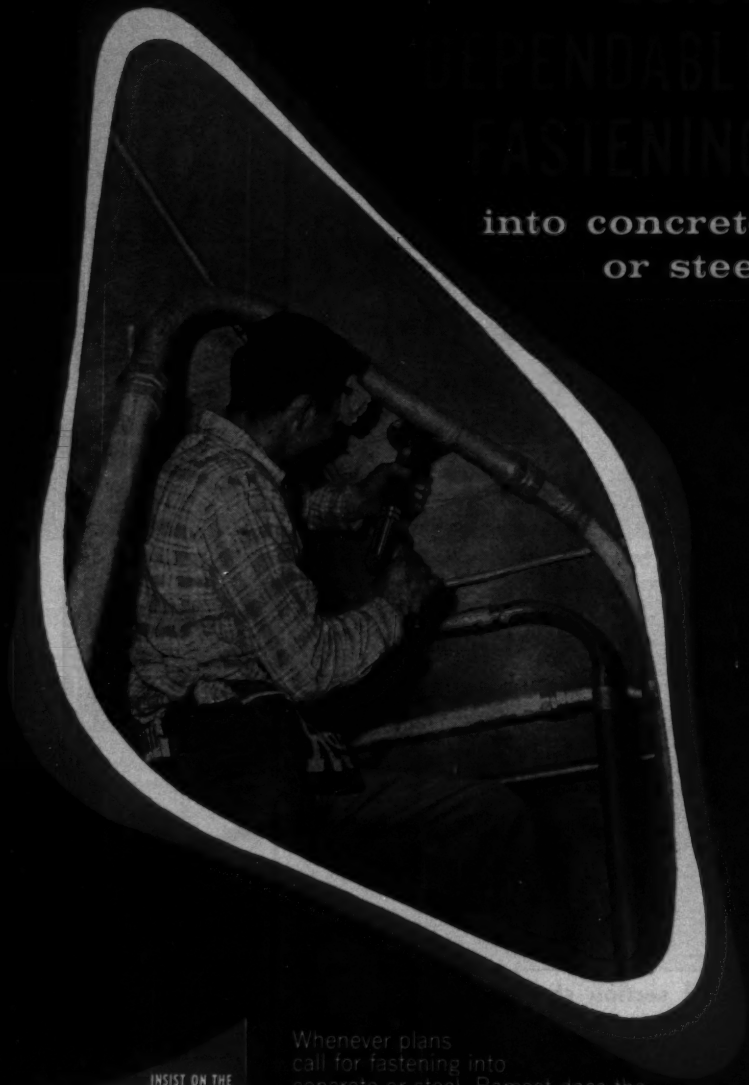


Cross section at towers reveals unusual design details.

Leading contractors use [illegible] for

QUICK DEPENDABLE FASTENING

into concrete or steel



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Wire wrapping protects cables.

upwards throughout the three spans, except at the cable bands next to the columns, where the concavity was initially downwards. These discontinuities gradually vanished as the columns were lifted.

After prestressing, workmen wrapped the suspension cables in a layer of soft, galvanized wire, about $\frac{1}{8}$ in. in diameter, as protection against the weather.

Live load used in design of the bridge is made up of three 71,000-lb trucks placed side by side on the roadway; a uniform load of 1,690 lb per lineal ft over the 10-ft-wide streetcar track, the length of the main span; and a uniform load of 82 psf over the remaining width of the roadway. Impact of 8% was added in designing stiffening girders and cables.

In a bridge of this type and span, interaction between cables and stiffening girders significantly decreases the live load moment. At Mariakerke, this decrease is 19%. Calculated maximum stress in the stiffening girders is 2,090 psi. Some tension may occur locally and is provided for by mild reinforcing steel, according to the designer. Maximum cable stress is 114,000 psi.

Cost of the bridge, exclusive of approaches, was $459,000. The designer says that a comparison made in similar case, between a different prestressed concrete suspension design and a continuous steel box girder structure indicates that the latter design would have cost twice as much at Mariakerke.

Allowance was made in the analysis for shrinkage and creep of the concrete, for relaxation of the cable steel, for a temperature differential of 27° F between the beams and the cables, and for a 3.15-in. settlement of either one pier or both piers. Live load adds 6.2% at the most to the permanent cable stress. This percentage increases with the span length.

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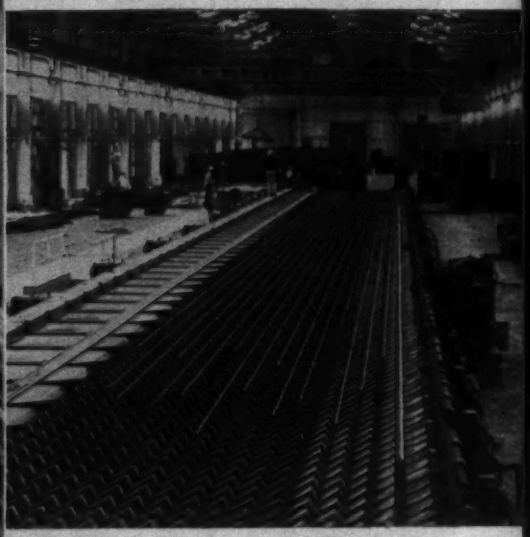

New automated bar rolling mill holds finished steel to exact specifications. Pictured is the cooling bed for bar products in Ceco's new steel plant.

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Contractors: Peter Kiewit Sons' Company

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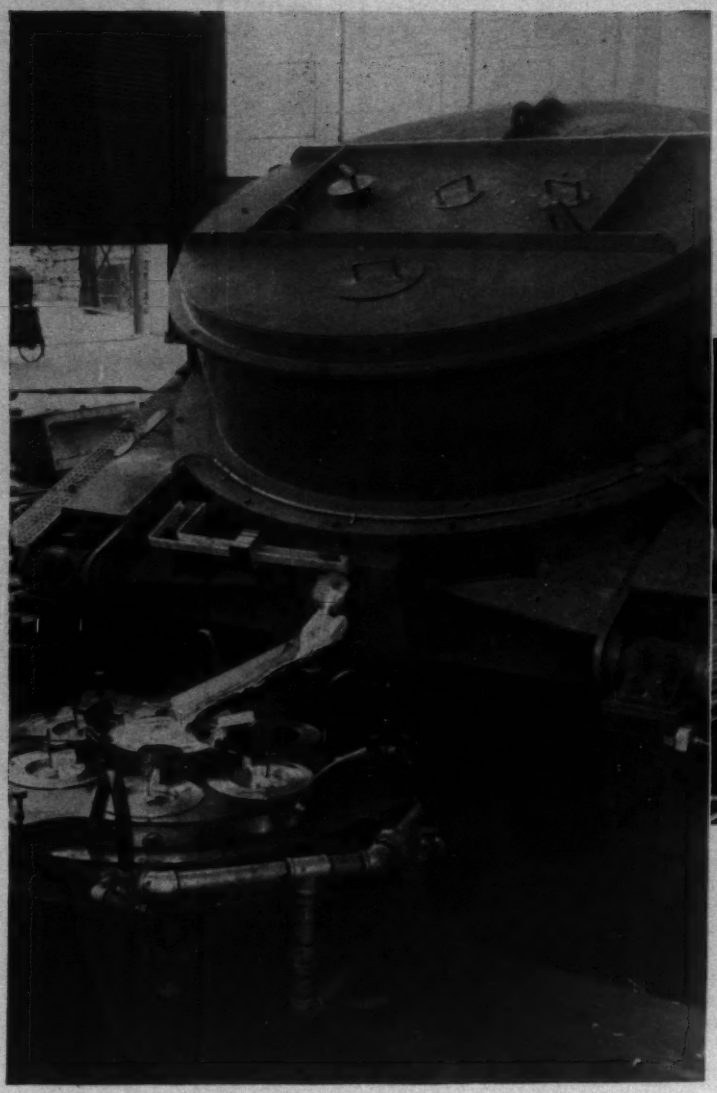

Accountability for Ceco quality in manufacturing aluminum building components starts with the melting of aluminum pig and continues through billet casting.

Here aluminum sections are cooled and straightened after being extruded. This is another step in Ceco quality control to ensure better building products.

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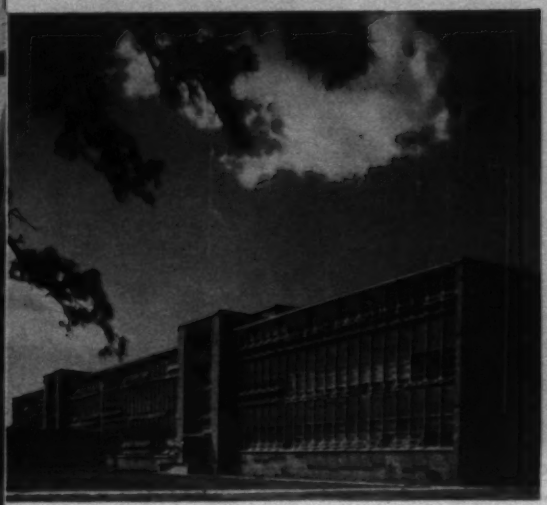

Ceco responsibility continues through job site delivery and field erection—the final step in supplying products that bring perfection in performance.

Jack Yates Senior High School, Houston
Architects: Herbert Voelcker & Associates
Contractors: Linbeck Construction Co.

Here again, from casting aluminum through erecting finished products, Ceco guards quality in components for buildings

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TOTAL MANUFACTURING FOR THE BUILDING INDUSTRY FROM RAW TO FINISHED PRODUCTS

Old columns are replaced with falsework towers (arrows) . . .

Which carry loads from

Old Frame

This spring, steel crews will start erecting a 12-story-and-penthouse office building 160 ft above New York City's Fifth Avenue. The project is an addition to an existing 12-story building housing the Morgan Guaranty Trust Co. The added stories will increase floor area in the building 75%, to 450,000 sq ft.

The original building, erected in 1897, is steel framed with tile arch and concrete fill floors. Existing columns—mostly box sections fabricated from 10- and 12-in. channels—carry loads only up to 1,200 kips. Twelve floors added to the existing frame increases this to a top load of 3,800 kips.

The structural engineers, Weiskopf & Pickworth, New York City, chose to replace rather than reinforce the existing columns.

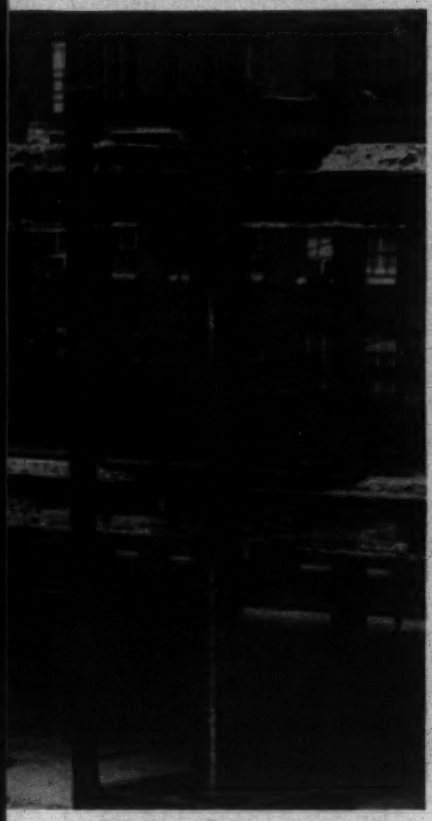
Their solution: Temporary falsework towers to carry the building loads while old columns are cut out and new 14WF sections are erected at 26 columns on four column lines.

After the building was stripped to its structural frame, demolition crews, using pneumatically powered pavement

1896—a famous gathering place

1961—new quarters for a bank

At the turn of the century, Sherry's on Fifth Avenue was the fashionable place to be seen in New York City. The restaurant and the carriages have long since gone, but the building has stayed. The 12-story structure has been a bank and office building since 1919, when Guaranty Trust Co. took it over. More space became necessary last year after Guaranty Trust merged with J. P. Morgan and Co. to form Morgan Guaranty Trust Co. To get that space, engineers have worked out a method of adding 12 new floors and a penthouse.



roof to foundations . . .

While old columns are cut and replaced with new steel.

Plus New Columns = 12 Floors

breakers, cut 8x8-ft holes around each of the 26 columns on every floor. This exposed the floor beams where they framed into the columns.

On the existing roof, Bethlehem Steel Co., the steel subcontractor, set up two 20-ton-capacity guy derricks, with 110-ft masts and 100-ft booms. The derricks first handled material for the column work below in the existing building. Later they will erect steel for the 12-story addition.

Falsework towers are four 8 WF columns on a 7-ft square centered on each existing column. The engineers developed a plan to provide individual footings for the tower columns and at the same time allow room for foundations under the new columns.

Original columns sat on cast iron pedestals resting on steel beam grillages founded on rock. Individual concrete footings—set at 45 deg. to the framing grid and just outside the old grillages are cast to rock for each tower leg. After old columns are removed, the original bases come out leaving a square —also at 45 deg to the framing grid—big enough to accommodate the larger concrete footings that were required for the heavier columns.

Working from the roof, ironworkers erect temporary towers around six columns at one time. These columns were distributed in a scattered pattern throughout the building. To preserve the building's stability, the engineers further specified that no two adjacent columns be dismantled simultaneously.

Tower columns are lowered down through the 8x8-ft holes in sections ranging in length from 28 to 6 in. to 42 ft 9 in. Each tower leg comprises five such sections.

As each tier goes up, workmen bolt four 10WF header beams to the tower columns 8 in. above each floor. Yoke assemblies extend down from these headers to the underside of existing floor beams at the edge of the floor openings.

These yokes are composed of upper and lower pairs of 5 in. channel welded back to back with tie plates and connected by vertical threaded hanger rods and nuts.

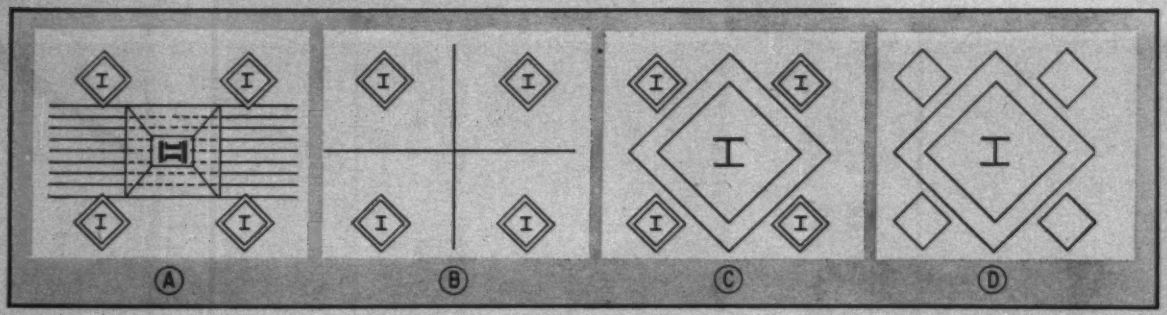
Crews shift loads from column to tower starting at the roof and working down to the basement.

First, hangers are tightened on the four floor beams around a column connection, transferring loads from the old column to the temporary tower. Next, ironworkers cut each beam away from the old column, making an added cut on one beam for erection clearance. Repeating this process at each floor, they continue down through the building. When they reach the basement, the entire column load is transferred to the four legs of the tower. During this stage, using the roof derricks, workers cut and pull out the column in manageable lengths.

Then Turner Construction Co., the general contractor, casts a footing for each new column on bedrock; Bethlehem installs a massive column base plate—some measuring 7 ft sq and 10 in. thick and weighing 2 tons—and everything is ready for erection of the new columns.

The guy derricks lower the new column sections in two-story lengths down through the building. Maximum size of the new columns is 14WF320 with 3-in. cover plates.

(Turn the page)



CHANGING from old to new foundations: tower footings go around old base and grillage (A); then larger footing replaces old base (B). Tower carries building loads. New column goes up (C) and then of the temporary structure (D) only the footings remain.

Ironworkers erect all sections of a replacement column from footing to existing roof in one operation, plumb the column, and tighten all splice bolts before reconnecting any floor beams. Beam connections consist of seats—usually stiffened portions of 36WF sections—and 6 x 6 in. top angles, all welded to the columns in the field.

Bethlehem reverses the order of load-transfer used in the dismantling process after erecting the new columns: iron workers connect floor beams starting from the basement and working up to the roof.

Columns were fabricated plain in the shop, without any projecting connections, to allow for erection clearance in the field.

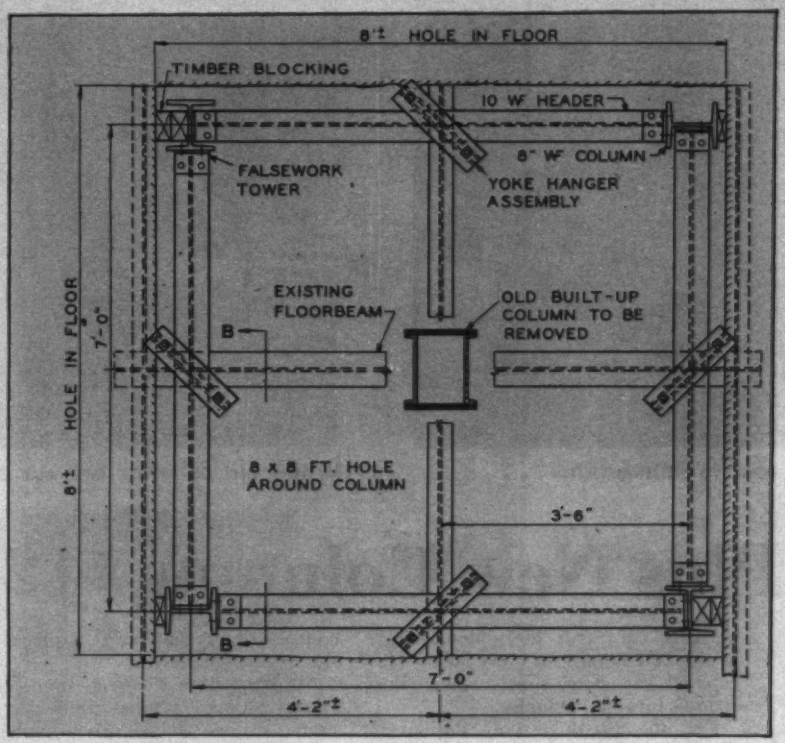
Welders fasten seat brackets, first to the columns then to the existing floor steel. Top angles come last at each tier. On each level, connections are made in opposite pairs rather than in order around the column.

With beam-to-column connections complete at a floor, workers release the floor steel hangers and move on to the next higher level. This process is repeated at each floor up to the roof and building loads are shifted from the falsework tower to the new column. Steelworkers then dismantle the tower and set it up at the next column to be removed.

Keeping original floor elevations during the transfer process was an essential part of the job. Field engineers recorded the elevation of each floor beam before shifting its load through the hangers to the falsework tower. Then checks were made after the old column connection was cut and again before welding the beams to the new column. In case of any movement, adjustments were made with the threaded hangers.

Tower shortening cancels out through the top to bottom unloading of the old column and bottom to top reloading of the new columns. Total axial deflection in the tower under load amounts to about ¾ in.

When Turner Construction Co., the general contractor, removed floor arches around the old columns, it found east-west girders connected to the columns through riveted, stiffened seats. But north-south beams had only a one-side bolted web connection.



FALSEWORK TOWERS are 8WF columns with 10WF header beams placed just above each floor. Hangers carry building frame loads from floor beams to headers.

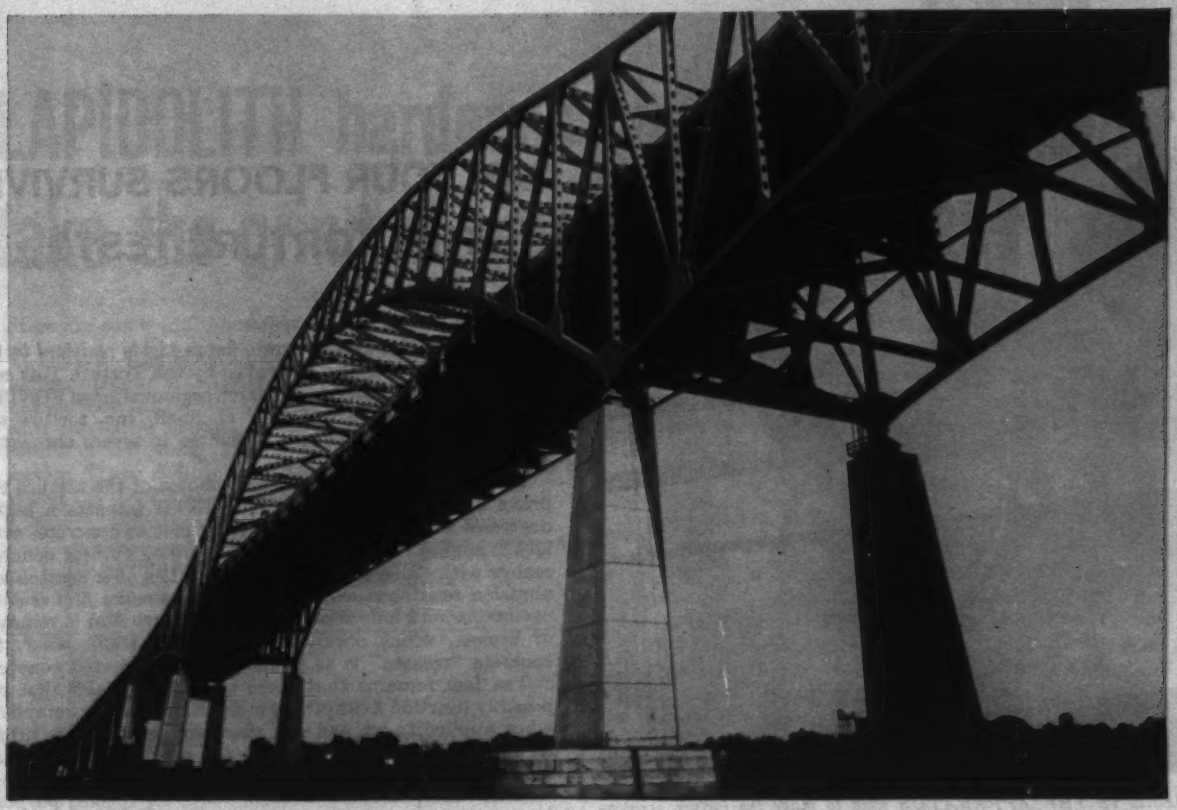
Because the engineers felt that the north-south direction was critical for overall rigidity of the altered building, they decided to add stiffeners wherever existing columns were retained. Here is how the necessary stiffeners were added without removing the tile arch at each column.

On top, laborers exposed the beam flanges just by cutting down through the floor fill. Then welders attached a plate, usually ⅜ or ½ in. thick, flat on the flange and butted to the column.

Underneath, workers pulled down the beam soffit tile and chipped column fireproofing away from the old erection seat. After the erection seat was cut out, another plate, typically ⅜ in. thick, was welded in place just as on the top flange.

Structural steel required for the column replacement is 1,100 tons; steel to complete the 12 added floors is 3,300 tons. Each falsework tower weighs 25 tons.

Eggers & Higgins, New York City, is the architect for the Morgan Guaranty Trust Co. project. Morton H. Eligator is project engineer for Weiskopf & Pickworth, the structural engineers. Chester A. Vaughn, Jr. is job superintendent for Turner Construction Co., the general contractors. George P. Adair is manager of erection, New York district, for Bethlehem Steel Co, and T. J. Elder is resident engineer for Bethlehem Steel Co.



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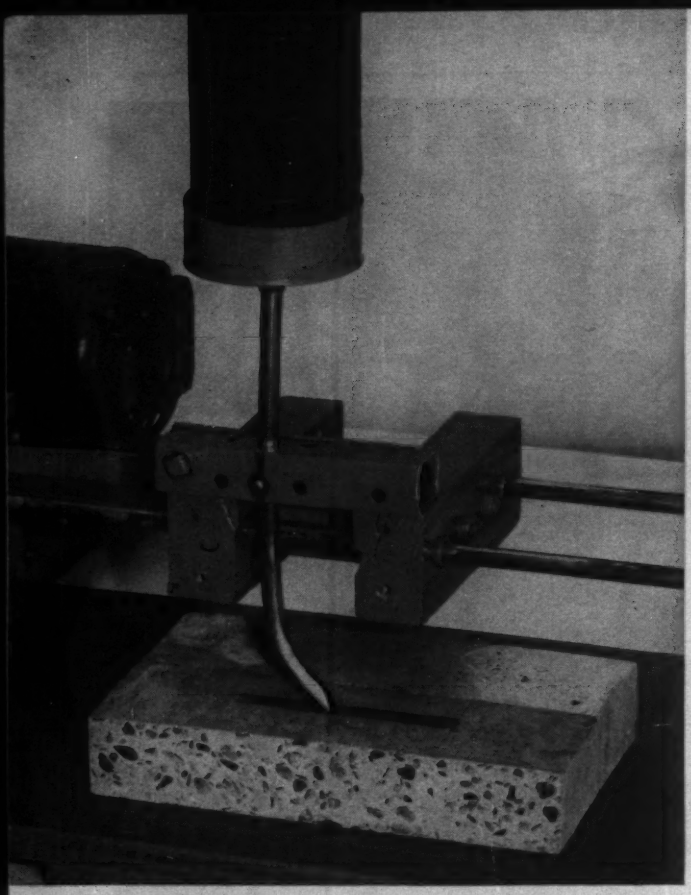


HERE IS THE APPARATUS used to make the torture scratch-hardness test in the research laboratories of Foster D. Snell, Inc. A steel bit with a half-inch chisel type edge was dragged back and forth repeatedly over the treated and untreated surfaces of the concrete specimens at an angle of 30° from the horizontal and under a load of 20 pounds. Machine was operated at 19 cycles per minute.

CAN YOUR FLOORS SURVIVE THIS TORTURE TEST?

LAPIDOLITH makes concrete floors *highly resistant* to the worst traffic conditions, as proven by the Torture Test conducted by the independent research organization of FOSTER D. SNELL, INC. The Foster D. Snell, Inc. torture test applied to untreated concrete resulted in severe damage to the floor.

These actual and unretouched photos of the torture test prove conclusively that LAPIDOLITH imparts a higher degree of scratch and abrasion resistance to concrete, actually changing the nature of the concrete. Typical concrete sealers with "alleged" hardening qualities offer scratch and abrasion resistance *only as long as the surface film remains continuous and unbroken.* Once this surface film is removed or broken, which occurs during normal traffic wear, the concrete "treated" is as vulnerable as untreated concrete.

The fact remains that there is no floor sealer that can possibly function as anything more than a sealing compound when applied to set and dry concrete. Floor sealers simply cannot chemically harden concrete. Sonneborn has an excellent and a complete line of floor sealers and curing compounds which Sonneborn recommends for specific purposes for which curing and sealing compounds are designed. Sonneborn does not, and will not recommend a curing and sealing compound as a concrete floor hardener. Sonneborn recommends LAPIDOLITH as the best treatment for hardening concrete floors.

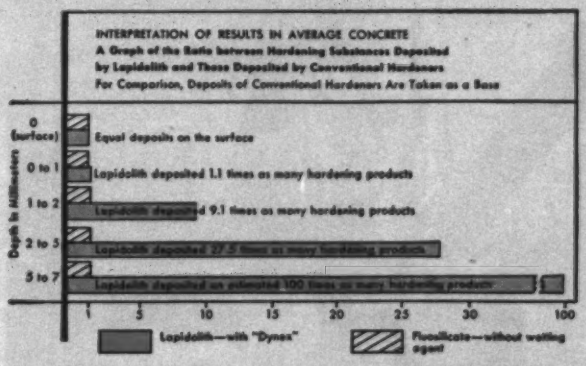
HERE IS WHAT HAPPENS when concrete is not *treated. After 500 strokes, the untreated concrete shows wear of 0.0035 inch; the equivalent of 3½ mils. The surface is broken and badly worn.*

ANOTHER SPECIMEN OF THE SAME CONCRETE was treated with a coat of typical sealer. After 500 strokes, the surface showed wear of 0.0007 inch, the equivalent of 2/3 of 1 mil. The surface appeared unbroken. But, look what happened when the sealer was stripped away. Photo is of block abraded after stripping by paint and varnish remover. The concrete showed erosion to a depth of 0.0027 inch; or the equivalent of 2.7 mils. The surface was broken and badly worn away.

LAPIDOLITH hardened concrete floors can take the grind of day in and day out traffic.

Here are some additional facts about LAPIDOLITH:

1. ONLY LAPIDOLITH CONTAINS DYNEX®. Because of Dynex, LAPIDOLITH not only chemically hardens the surface, but *penetrates deeply* into the sub-surface pores and capillaries giving *greater HARDNESS IN DEPTH.* Proof of hardening in greater depth is shown in chart below. These radioactive tracer tests, were conducted by FOSTER D. SNELL, INC.


INTERPRETATION OF RESULTS IN AVERAGE CONCRETE
A Graph of the Ratio between Hardening Substances Deposited by Lapidolith and Those Deposited by Conventional Hardeners
For Comparison, Deposits of Conventional Hardeners Are Taken as a Base
Depth in Millimeters
0 (surface)
0 to 1
1 to 2
2 to 5
5 to 7
Equal deposits on the surface
Lapidolith deposited 1.1 times as many hardening products
Lapidolith deposited 9.1 times as many hardening products
Lapidolith deposited 27.5 times as many hardening products
Lapidolith deposited an estimated 100 times as many hardening products
1
5
10
15
20
25
30
100
Lapidolith—with "Dynex"
Fluosilicate—without wetting agent

2. RESISTS INSTANTANEOUS ACID ATTACK. LAPIDOLITH protection permits enough time to flush off acids before the concrete is harmed. (Proof of acid test available on request.)

3. GUARANTEED. LAPIDOLIZED concrete floors are fully bonded and guaranteed for 5 years against concrete dusting as a result of abrasion and wear, when applied under contract by Sonneborn—America's foremost manufacturers of liquid chemical concrete floor hardeners.

4. PROVEN SUCCESS. LAPIDOLITH is the *original* chemical floor hardener and has been distinguished by having received the famous "Brand-Names-Award." Over half a billion square feet of concrete floors have been successfully LAPIDOLIZED in the past 57 years.

5. EASY TO APPLY. LAPIDOLITH is a laboratory controlled, factory prepared, stabilized colorless solution and very simple to apply.

"CUSTOM DESIGNED" LAPIDOLITH CONCRETE FLOOR SYSTEM

There is no one product or system that can perform all the functions required for all concrete floors. Floors are individually designed for different purposes, and every one product or system may be either under-designed or over-designed for the specific requirement. Only Sonneborn offers you a "custom designed" LAPIDOLITH Concrete Floor System to help *you* with your *specific* floor problem. Sonneborn is the one company you can come to with *all* your concrete floor treatment requirements.

At no obligation to you, we will have one of our qualified floor specialists make an expert inspection and recommendation for you.

Replacing worn-out concrete floors will cost you many times more than a simple, low cost, application of LAPIDOLITH. WRITE TODAY FOR FREE INSPECTION.

All photos are *actual* and *unretouched* and are of tests made by FOSTER D.SNELL,INC., with their facilities and under their supervision.

SONNEBORN CHEMICAL AND REFINING CORPORATION

Building Products Division E-40

404 Park Avenue South, New York 16, N. Y.

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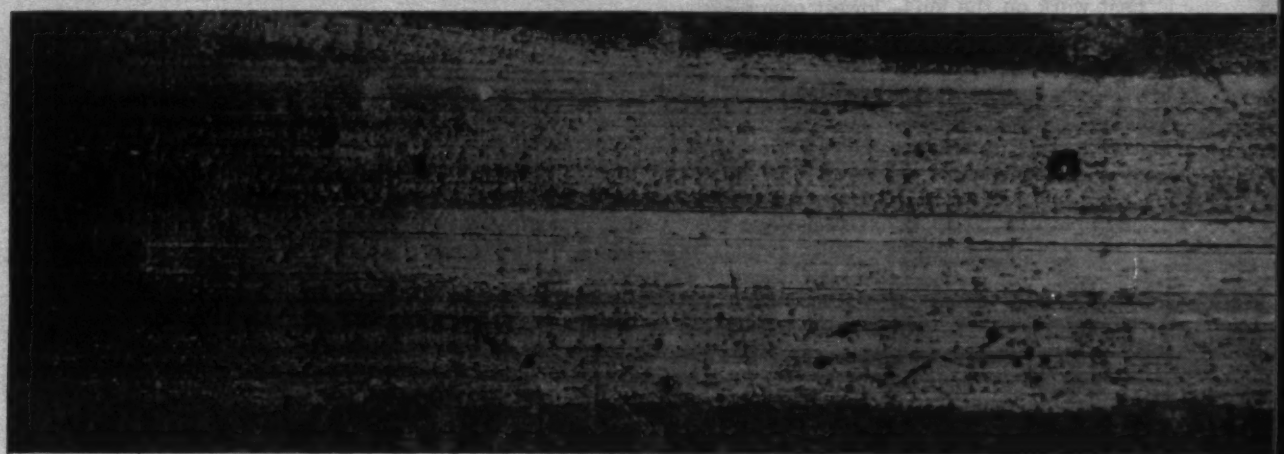

HERE YOU SEE THE LAPIDOLITH treated concrete after 500 strokes. Note that even under six magnifications the surface appears unbroken, with total wear being measured at only 0.0003 inch! The equivalent of 1/3 of 1 mil! Particles of metal may be seen imbedded in surface of the concrete.

You and UNIT earning power

Completely satisfied with the performance record of his two UNIT ¾ YD. excavators, Mr. James Lavin of JFL Trucking and Excavating, West Allis, Wis., says he'll pick UNIT again when buying a new machine.

Buying major construction equipment is almost like marriage — you'll live with your choice a long time. That's why it's important to choose the bigger *earning power* of a UNIT excavator or crane. You'll find that your equipment investment will pay off with fast cycle speeds, big output and more dependable performance than other machines in the same size range. You and your UNIT will have a true *payload partnership.*

Fast work on the job — lowest operating cost — negligible downtime . . . these are but some of the reasons why the *earning power* of a UNIT lets you knock out the competition at bid letting time. You win more contracts with a combination of job-proved features, finest quality components and unmatched workmanship.

Features like UNIT'S exclusive one-piece cast main machinery gear case that completely encloses all gears and shafts in a constant bath of lubricant . . . eliminating frequent adjusting or greasing. UNIT offers straight-in-line mounting of the engine with the main machinery to give longer machine life and perfect alignment of all working parts. All disc-type operating clutches are interchangeable . . . can't grab or self-energize. The exclusive automatic traction brakes on crawler machines assure positive, safe braking power . . . even on the steepest grades. Long, wide-spread crawlers and a big, heavy carbody provide the solid working base you need to get full dippers in the toughest material.

You can start on the road to your *payload partnership* right now by calling your UNIT dealer. He's got the detailed information you need on the 5 UNIT convertible crawler machines, 4 UNIT convertible truck cranes and 2 UNIT mobile cranes.

SHOVELS	HOES	CRANES	DRAGLINES
½ to ¾ YDS.	½ to ¾ YDS.	5½ to 40 TONS	½ to ¾ YDS.

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International

Tenants Stay in Split Building

A nine-story apartment building in Rome, sporting a tremendous vertical crack (ENR Oct. 15, 1959, p. 19), retains two-thirds of its original tenants.

City officials evacuated the building after it cracked. But Roman laws don't permit the city to keep a privately owned building vacant indefinitely. Tenants, taking advantage of low rents, moved back into 19 apartments, leaving only nine vacant.

Possible cause of failure was the installation of 28 reinforced-concrete 80-gal watertanks on the roof to replace some small plastic tanks. This added 44 tons to the building load.

The owner has installed six 10-ft-deep beams in the lobby to stiffen the structure.

To indicate any further movement in the building he has inserted glass rods, 4-in. long, into partitions and exterior walls at many points throughout the building. Any break would signal the need for immediate evacuation.

Cuban Port Builds Water Plant

A water treatment plant with a 24-mgd capacity is under construction in Santiago de Cuba, capital city of Cuba's rugged Oriente Province.

The $1-million plant is being built by the Cuban Ministry of Public Works.

The treatment plant features rapid sand filters and a 150,000-gallon storage tank. It was designed by Saenz, Cancio, Martin y Gutierrez, Havana architect-engineering firm.

The contractors, Construcciones COAPRA, expect to complete the job late this year.

Exclusive

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Anchor anything to concrete...permanently

BULLDOG *Gold Digger*

*POW-R-GRIP ridges around the shank of the BULLDOG "Gold Digger" drill/anchor permit *faster, easier drilling* into hardest concrete, brick or stone. Once the drill/anchor is set, these powerful ridges, plus the proven expansion principle of "Gold Digger" drill/anchors, assure greatest holding-power under all job and climatic conditions. Only POW-R-GRIP ridges assure "the grip that never fails". *Send for full details today!*

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The following five combined features make OWEN the big giant performer . . . for any type of clamshell work . . . for any model or make of crane.

1. Block and Tackle Type Reeving
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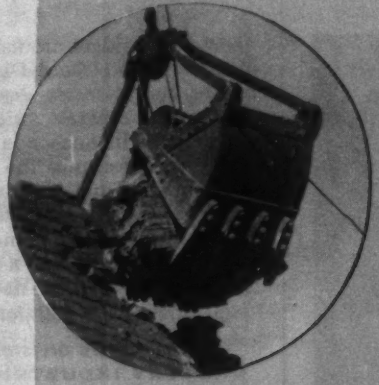
Added to these construction features are more than fifty years experience in the manufacturing of clamshells . . . and nothing else! For any job that requires a clamshell, there is an Owen to fill the bill . . . backed by proven construction design and over one-half century of experience.



Put the Giant on your crane — OWEN — and know the work will be done faster, better and more economically.

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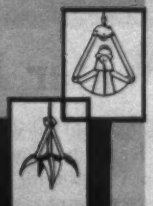

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Thames Tunneling to Start For Second Blackwall Tube

Tunneling will start this month on the long-delayed second tube of London's Blackwall Tunnel beneath the Thames River.

The job has been in the talking and planning stages for more than 25 years, but World War II and post-war economic conditions have held it up (ENR June 28, 1958, p. 46). London County Council awarded an $11-million contract for the 4,400-ft bore to Balfour, Beatty & Co., Ltd.

The tunneling will be done under air from caissons sunk at both sides of the river. Two 7-ft-dia pilot tunnels will be pushed ahead of the main 28-ft-dia bore to permit chemical consolidation of the earth.

The new tube, scheduled for completion in mid 1963, will parallel at a distance of 250 yd, the original tube built 63 years ago for horse drawn vehicles and pedestrians. The old tube, which carries two-way traffic on its 16-ft-wide roadway, will ultimately carry only northbound traffic. Southbound traffic will use the 20-ft-wide roadway of the new tunnel.

Both tubes will connect with the original approaches. A $1.7-million alteration of these approaches has just been completed, and contracts for additional approach work are to be awarded soon.

Total cost of the tunnel and its approaches is estimated at $21 million.

Manila Construction Firm Grows with Island Economy

The Atlantic Gulf and Pacific Co. of Manila, Inc., is celebrating its 60th anniversary this year.

It was organized soon after the Spanish-American War to participate in public works construction under the new American government in the Philippines. Now, in addition to its extensive construction operations, the company fabricates steel, manufactures machinery and is in mining, preservative treatment of timber, and marine and lighterage work.

Over the years the company has engaged in every type of construction required by the expanding economy of the Philippines. World War II shut down the operations: All plants were destroyed to prevent enemy use; and American personnel were imprisoned by the Japanese in St. Tomas internment camp. Following the war the company completely rehabilitated its facilities.

(*International* continued *p.* 58)

World's biggest Hydra-Boom jumbo drives OXBOW TUNNELS

19 Hydra-Boom mounted I-R drifters on five-level air-driven jumbo, drill twin 42-ft bores for 200,000 kw hydro station

Shown above being moved up to the working area with an assist from four tractors, is the largest tunnel jumbo ever built—taller than a four story building and carrying the concentrated "fire power" of 19 Ingersoll-Rand D-45 drifters on 10-ft chain feeds with I-R Hydra-Boom mountings. Designed and built by Morrison-Knudsen Company, Inc., this huge jumbo was used to drive the twin 42-ft horseshoe power tunnels that will supply Idaho Power Company's 200,000-kw hydro-electric station on the Oxbow bend of the Snake River.

The Hydra-Boom mountings permit rapid hydraulic positioning of all drills from convenient centralized controls at each drilling station. Drilling 2½" holes 10 ft deep with modified Vee pattern in the hard, chunky columnar basalt of the area, the jumbo was moved alternately from one bore to the other—drilling in one while the other was blasted and mucked. The crawler-mounted jumbo is self-propelled in the working area by 25-hp I-R air motors.

Air power for the tunnel jumbo was supplied by a bank of six skid-mounted I-R electric-driven XLE compressors with a total capacity of about 8000 cfm at 100 psig—shown at upper right in the photo above.

Whenever you want fast, effortless drill positioning on any job, be sure to check the advantages of I-R Hydra-Boom mountings. Your Ingersoll-Rand engineer will be glad to give you complete information.

Ingersoll-Rand

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Should an accident happen when you're driving abroad in your own or a rented car, your domestic insurance, most likely, will not cover you. Strange laws, customs and language also may add to your problems.

Your one safe answer is the kind of insurance AFIA provides—insurance designed in the American way but patterned to comply with the compulsory requirements of the countries you travel.

So if you're going overseas on business or pleasure . . . play it safe. Have your agent or broker discuss your plans with AFIA to be sure you have adequate and proper insurance—personal property, liability, trip accident and automobile—to give you sound protection abroad.

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Bhakra Dam Repair Safe For Monsoon Rains

Progress in plugging the damaged diversion tunnel at India's Bhakra Dam will be far enough along when the monsoon rains begin in June to handle any necessary rise in reservoir level.

That's the latest word relative on the notable repair job required when a break in the roof of the 50-ft-dia tunnel at a gate chamber flooded interior passages in the dam as well as the powerhouse (ENR Oct 15, 1959 p. 23). The only way to get at the break was to plug the entrance to the diversion tunnel, which was under 190 ft of water. This has been done by dumping crates of concrete and a clay blanket (ENR Feb. 25, p. 51). All but about 325 cfs of flow has been shut off, and siphons carry this leakage past the section to be plugged.

During the monsoon the permanent water control outlets in the dam can be used to keep the reservoir level from rising too far, and increasing leakage into the tunnel. It is hoped that the 150-ft plug can be completed by the end of the year.

Meanwhile the spillway is being raised so that some storage for power and irrigation can be available this Fall. All the concreting of the dam can be finished next year, but the structure will not be fully completed and in operation until October, 1962.

Morocco Granted Loan For Mechra Klila Dam

The Development Loan fund has loaned $23-million to the government of Morocco for construction of Mechra Klila Dam and Reservoir.

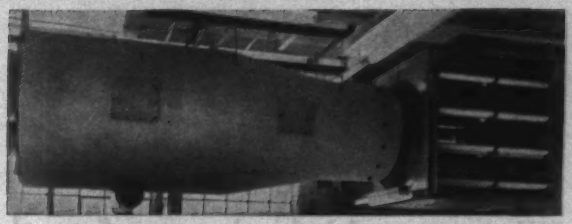
The $83-million project is on the Moulouya River in northeastern Morocco. It also includes irrigation canals, a six-mile tunnel distribution systems, drainage works and a land improvement program serving 31,000 acres.

Heart of the plan is a 200-ft-high concrete gravity dam with a gated spillway and four irrigation outlets. One power penstock will be installed for future power generation.

Mechra Klila water will supplement the existing Mechra Homadi Dam, a 185-ft-high concrete diversion structure 10 miles downriver. Mainline irrigation canals will serve 135,000 acres on both sides of the river.

The project is located in an area rich in iron, lead, anthracite and other mineral deposits. The government plans to develop the area as an industrial center second only to Casablanca.

17 reasons why the Carrier Rotaspray Weathermaker System is



Carrier Rotaspray units may be installed rooftop mounted, ceiling suspended or outside wall mounted.

TODAY'S BIGGEST INDUSTRIAL AIR CONDITIONING NEWS!

1. Proved in use. Now in its fifth year of use in many different applications, the revolutionary Rotaspray® Weathermaker System* has proved itself vastly superior to conventional close-control systems.

2. Unitary design. Instead of one large conventional central station system serving several departments, each department has its own Rotaspray unit and can change its temperature and humidity to meet its individual needs.

3. Smaller apparatus size. A Rotaspray unit requires less than ⅓ the space of a conventional system of equal capacity, due to its high velocity design.

4. Reduces cleaning and maintenance costs. Rotaspray units, with exclusive self-cleaning design, require very little maintenance.

5. Needs no apparatus rooms. No rooms are required to house Rotaspray units, even when located outside a plant.

6. Lasts indefinitely. Rotaspray units, constructed of stainless steel, deliver a long life of trouble-free service—eliminate the need of cleaning and painting.

7. Eliminates many system components. Because of revolutionary system design, Rotaspray units need no water strainer, no water pump, no water tanks, no city water and drain piping, no apparatus room and no floor drains.

8. Needs no air filters. Instead of trying to keep dust and coarse particles out as conventional systems do, the Carrier system draws them in, separates them from the air and returns them to central point for automatic collection and disposal.

9. Better humidity and temperature control. By a new control method, the Rotaspray System eliminates dewpoint control and its problems. Within system capacity, departments simply "dial" the temperature and humidity required.

10. Low operating weight. Since Rotaspray units are smaller, require no enclosure, and have no standing water level, their weight is relatively low and units may be ceiling suspended or rooftop mounted without additional building reinforcement.

11. Constant air supply. Conventional systems use automatic dampers which close down and reduce the amount of air delivered to the room. Though this causes variations in temperature and humidity, it is a "must" in such systems to prevent excessive operating costs. With the Rotaspray System, air is always constant, yet operating economy is superior.

12. Longer fan life. In conventional systems, the fan is on the unit's leaving side where high humidities cause excessive corrosion. The Rotaspray unit, with the fan on the entering side where humidities are lower, greatly lengthens fan life.

13. Relocates easily to meet plant changes. Rotaspray units require no housing, are small enough and light enough to allow easy relocation.

14. Allows lower air quantities. Rotaspray Systems require from 5 to 10% less supply air than conventional systems. Result: better air distribution and smaller ductwork.

15. Eliminates "compromise" temperatures and humidities. With the new Rotaspray System, exact conditions can be maintained in each department. One area is not dependent upon another.

16. Install evaporative cooling now—simply add refrigeration later. When a conventional system is converted from evaporative cooling to dehumidifying service, many extensive modifications are required—such as the addition of chilled water lines, water storage tanks, etc. With a Rotaspray System, none of these must be added. Except for minor changes in the control system, the only need is the addition of a water-chilling machine.

17. Provides more at a competitive price. Though individual plant conditions vary, on the average you pay no more for a Rotaspray System than for conventional "high-quality" systems. And you get a lot more back in efficiency, economy of operation and maintenance savings. For information about the revolutionary Carrier Rotaspray Weathermaker System, write Machinery and Systems Division, Carrier Corporation, Syracuse 1, N. Y.

Pat. Pending

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BETTER AIR CONDITIONING FOR EVERYBODY EVERYWHERE

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When you think about safety think

BIG

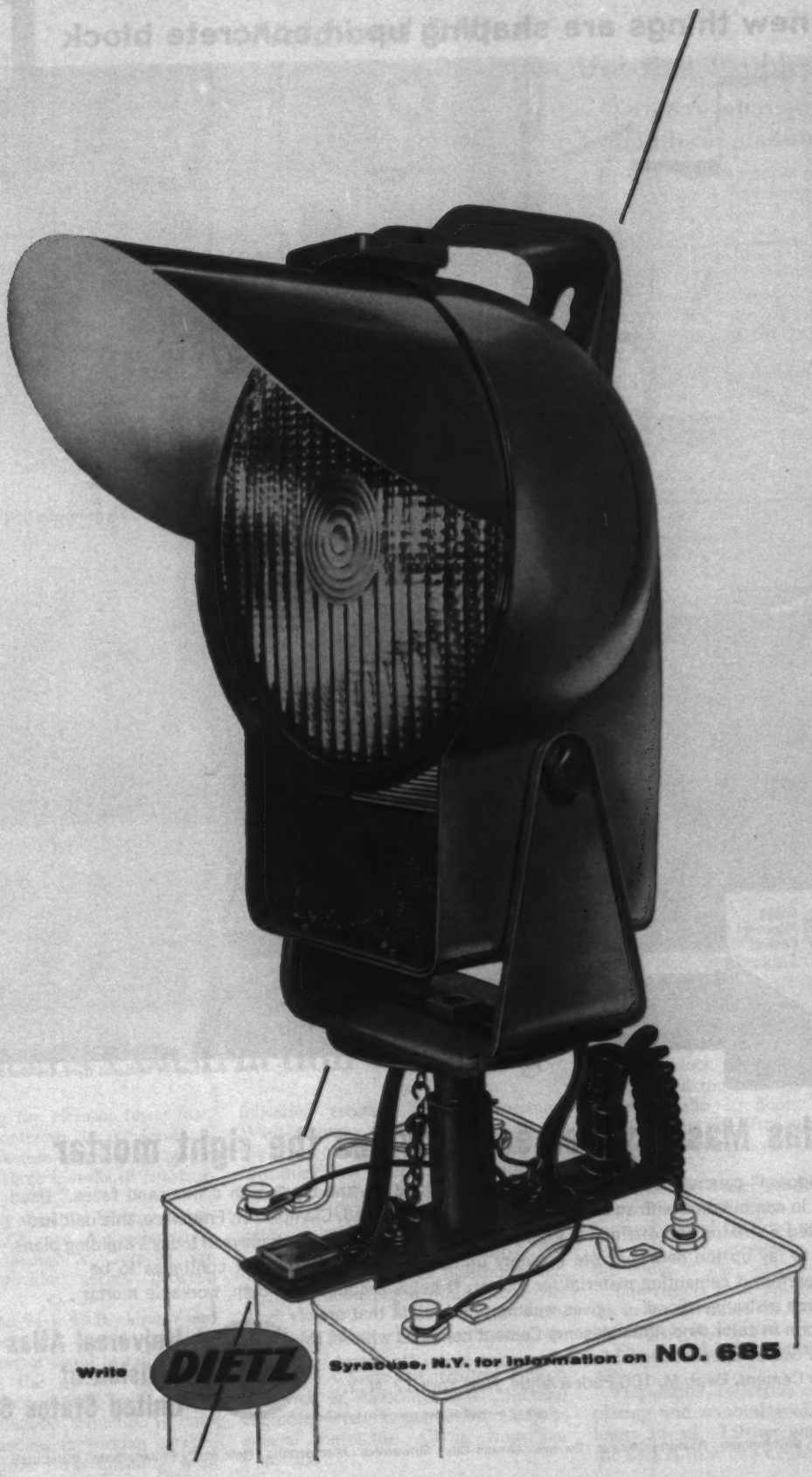
And that means more than size. It means adequate warning to protect the public . . . your workers . . . and *you!* The new Dietz Visi-Flash 685 does just that because it's . . .

BRIGHT

One thousand three hundred and sixty-five candle power . . . 50 attention-demanding flashes per minute . . . big 8" lens . . . super visibility day or night. And it's . . .

PORTABLE

Easily carried anywhere. No fixed current line needed . . . the fully transistorized circuit operates on two 9 volt hot shot batteries.



Write DIETZ Syracuse, N.Y. for information on NO. 685

Great new things are shaping up in concrete block

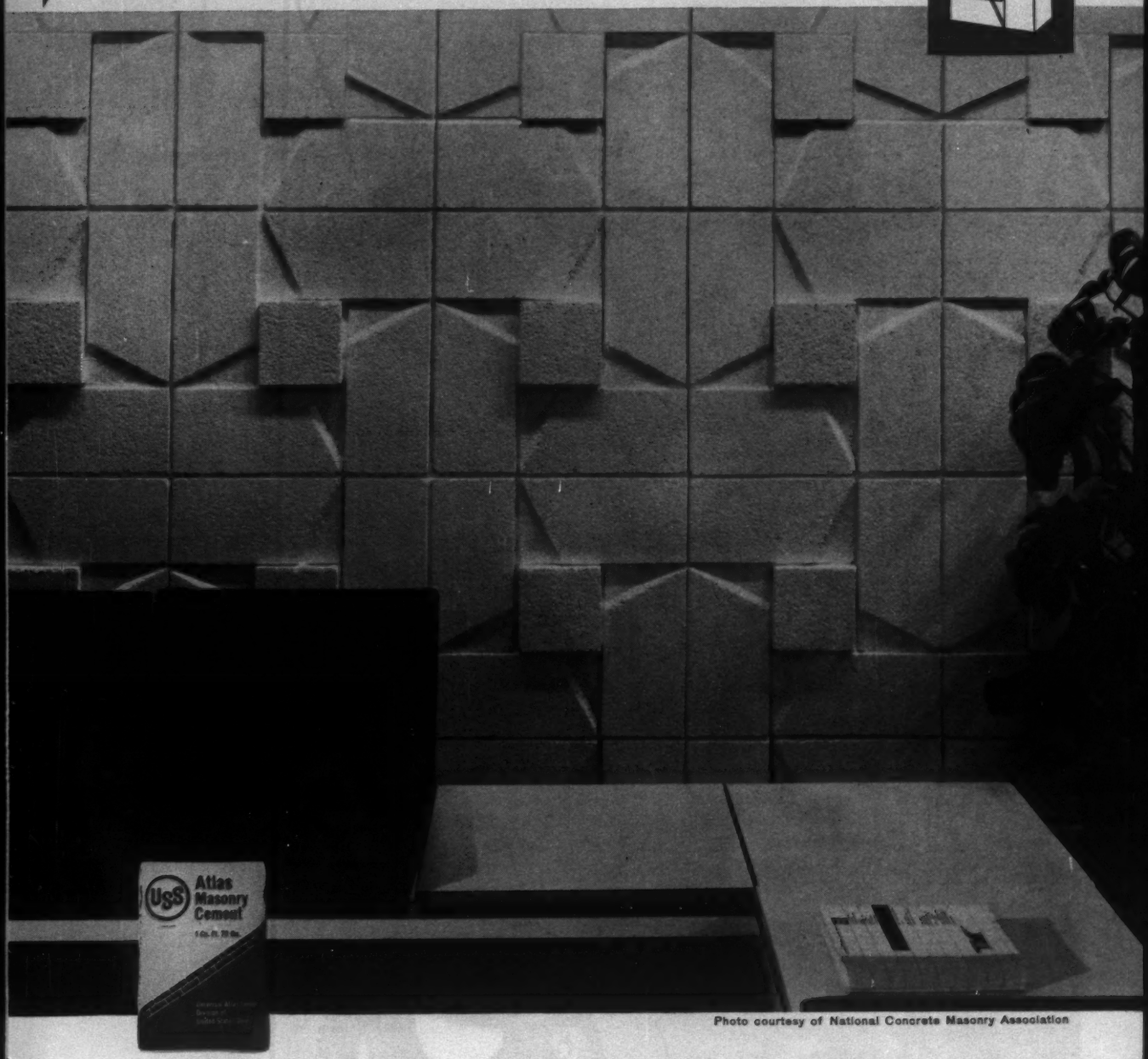


Photo courtesy of National Concrete Masonry Association

Atlas Masonry Cement provides the right mortar

"Shadowal" concrete block has often been described as "the block with a thousand faces." Used here in combination with square blocks by Architect Mario J. Ciampi, San Francisco, this unit has created a striking and distinctive example of the role concrete block plays in today's building plans. And to lay up the new concrete masonry units, Atlas Masonry Cement continues to be the preferred cementing material for mortar. It helps produce a smooth, workable mortar . . . assures a stronger bond . . . gives weatherproof joints that are uniform in color. And Atlas Masonry Cement complies with ASTM and Federal Specifications. For information write: Universal Atlas Cement, Dept. M, 100 Park Avenue, New York 17, N. Y.

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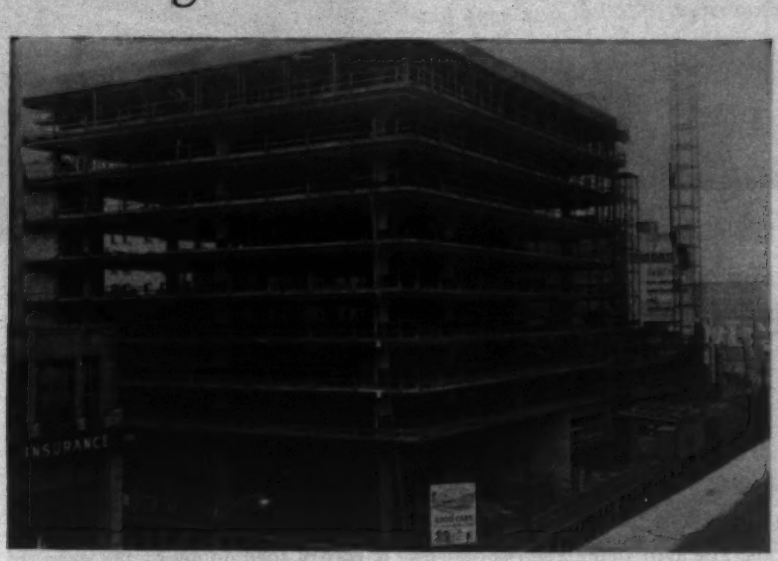


. . . Speeds Construction of Garage

By building the elevator tower first, the general contractor on a $3-million, reinforced concrete parking garage in Seattle saved three months of construction time.

The 10-story structure features driver-parking for 1,270 cars. A circular ramp, designed by George A. Gore of San Francisco, provides access between levels.

Erecting the 9½ x 43 ft elevator and stairwell tower first meant that the elevator contractor could install the elevators while the general contractor built the floors and roof.

This construction sequence is especially advantageous in parking garages, for they require little finishing work following erection of the structure. With ordinary construction sequence, the time-consuming elevator installation continues long after the installation of lighting systems, wheel stops, guard rails, etc. This can delay the opening date.

Another advantage was early dismantling of the outside hoisting tower. The contractor began using one of the three elevators to hoist men and materials long before the project was completed.

George A. Gore was architect; Ellison Sedgwick & Associates was structural engineer; Utah Construction Co. was general contractor. All are from San Francisco.

Hoisting Problem

Two-day job requires five months of planning work

Hoisting two 20-ton boilers onto the roof of the 26-story Kroger building under construction in Cincinnati took five months of planning.

The Kroger building is the first multi-story structure of reinforced concrete construction in that area. Consequently, not a great deal was known about the stresses involved in the rigging operation.

The contractor performed the work this way: Directly over the four main columns, Fenton Rigging Co. installed 16 in. H-sections as dunnage beams.

The riggers then placed numerous 12-in H-beams on top of the two 16-in. H-beams to make a solid platform. They welded an inverted 12-in. I-beam to the 12-in.-wide flanges. Pivots were welded to the I-beam to make a "floor rest" for a boom.

A gasoline hoisting engine was then hoisted up to the 26th floor by the boom. The hoisting engine was set back about six bays from the boom and tied down around the concrete columns and concrete beams supporting the 26th floor.

From the hoisting engine one drum led from the hoisting engine to the boom head to allow booming up and down of the load. The other drum served as the hoist drum to raise the boiler. The boom was rigged with a three-part tackle. A six-part line actually hoisted the boilers.

Some 2,000 ft of cable was needed to make the final pick-up of the boilers because there were seven parts of line coming from the boom to the ground.

The boom was set out 8 ft from the side of the building and held in this position by the second drum of the hoisting engine. The riggers lowered the load block to ground level where they hooked the boiler to it, and then raised up the 26 floors. They were guided all the way—from the street with tag lines and from various floors with rods.

When the boiler reached the 26th floor, the second drum of the hoisting engine boomed the load up over a mat that had been previously prepared for the boiler.

The riggers then lowered the boiler on mat and rolled it back across the building to its location.

The second boiler went up the same way.

Preparation, collection of equipment, placing and removal took 1,060 man-hours in all. Lifting and placing of the boilers took one weekend.

Note the clean, uncomplicated construction, the attractive architectural features, the enormous span.

There's an Inland Structural Steel for every new construction idea

Domes

making full use of the versatility of structural steel, easily span tremendous unobstructed areas—meet every requirement for ease and speed of erection, light weight, beauty and economy.

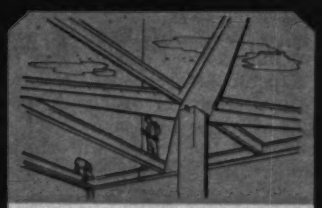
Prefabricated structural steel members are delivered to the site ready for immediate use. Erection is speedy and uncomplicated, with little field fabrication required. Ribs can be small trusses, light weight I-Beams or similar structurals. The light weight, self-supporting nature of such domes eliminates the need for the dead weight of heavy wall construction. Temporary steel columns support the compression ring during erection—eliminate expensive falsework.

Temporary supports of steel, easily salvagable, are used to support the trussed ribs during construction.

For complete information on the considerable savings achieved on many steel domes, see your local fabricator who now has structural steel available in all shapes and sizes—or call the American Institute of Steel Construction office in your area.

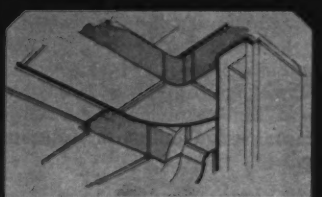
Use Steel *For Modern Construction*

other inland construction products

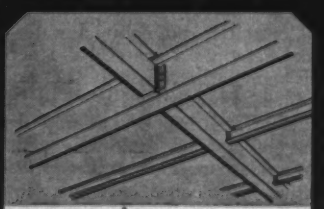


INLAND STEEL PLATES are offered in a wide range of gages and sizes with metalurgical and physical properties tailored to every construction requirement.

INLAND BEARING PILES AND STEEL SHEET PILING are used in foundations, retaining walls, coffer dams and other excavating and supporting jobs.



INLAND TI-COG GALVANIZED SHEETS are the popular choice of metal contractors who install miles of air handling duct work in the largest commercial buildings. Their nonflaking quality adds years of corrosion-resisting service.



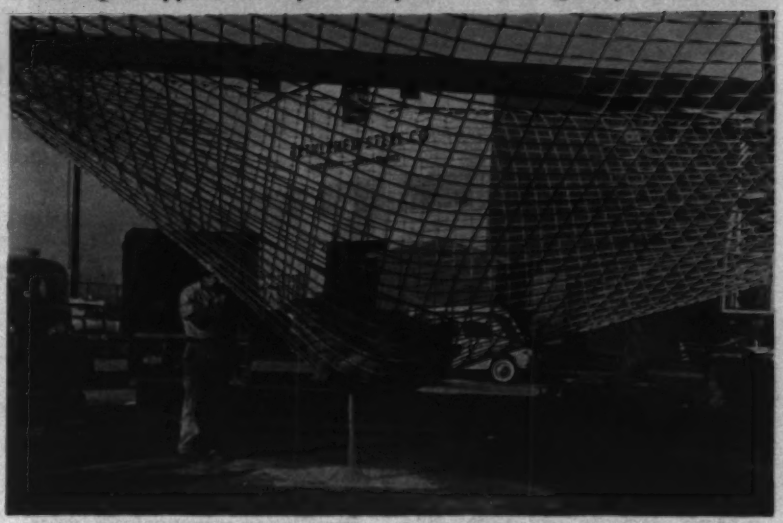
WIDE FLANGE BEAMS are the answer wherever more strength with less weight, longer spans with more open floor area, is the goal. Sizes from 8' to 24'.

INLAND

INLAND STEEL CO.

30 W. Monroe Street • Chicago 3, Ill.

Sand bags dropped 25 ft by crane operator are caught by . . .



. . . Construction safety net mounted on 12-ft-high scaffold.

Safety Nets Sand-Bagged in Test

Safety nets of ¾-in. Manila rope on 6-in. centers are more than adequate for heavy construction use, according to a preliminary examination of results of a series of net tests conducted by the National Safety Council.

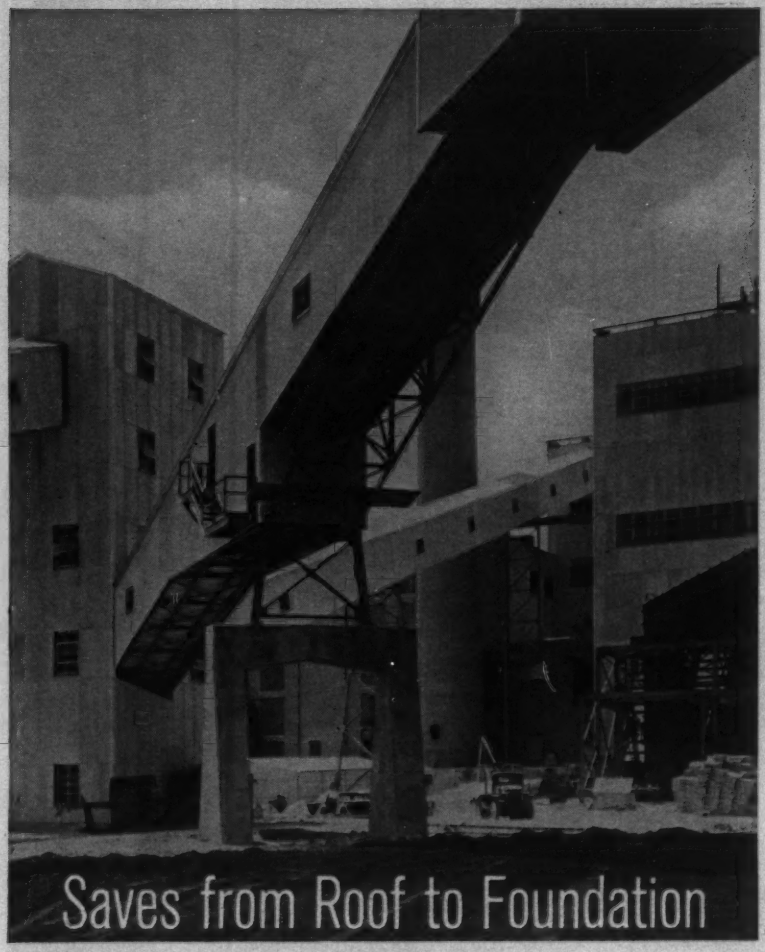
These nets weigh only about one-third as much as the safety nets of ¾-in. Manila rope on 4-in. centers stipulated in many codes. The reduction in weight means that the nets are both less expensive and easier to rig.

Both diamond mesh and square mesh nets were used in tests staged in the Bethlehem Steel Co. erection department yard in Alameda, Calif. Static tests showed a superiority of diagonal mesh over square mesh, according to the NSC.

The 38 x 50 ft safety nets were supported on scaffolding built some 12 ft above the ground.

Loads dropped into the nets were increased to maximums of 2,000 lb of sand bags falling from a 25-ft height and 1,400 lb of sand bags dropped from 38 ft.

The nets caught these loads with no apparent damage, stretching down to the ground. The NSC committee had planned to increase the load until the nets broke. But heavier loads would



RUBEROID®
Corrugated Asbestos

Gulf Power Co., one of the South's largest utilities, avoided a lot of maintenance headaches by using Ruberoid Corrugated Asbestos Sheets for roof and sidewalls of this new generating station at Pensacola, Florida.

Ruberoid Corrugated Asbestos is incombustible and practically indestructible. Fire, rot, rust, and water can't harm it. Rodents and boring insects shun it. Salt air, humid atmosphere, extremes in climatic heat and cold, industrial fumes—dense, rocklike Ruberoid Corrugated Asbestos resists them all.

Installation economy is an important advantage when using Ruberoid Corrugated Asbestos. It permits construction without sheathing, so foundations, footings and steel or wood supporting members can be lighter, reducing overall building weight. Many of today's construction cost problems are solved with tough, nonrattling, virtually maintenance-free Ruberoid Corrugated Asbestos.

Get complete specification data. Write The RUBEROID Co., Industrial Products Division, 500 Fifth Avenue, New York 36, New York.

The RUBEROID Co.®

CORRUGATED ASBESTOS CEMENT ROOFING AND SIDING

have required the construction of higher scaffolding.

In other phases of testing loads were dropped into various quadrants of the nets. Experiments were made to determine the effects of using different methods of edge suspension.

Analysis of test results will provide data for up-dating safety codes.

The NSC committee conducting the net tests includes Rudolph J. Behley, of Travelers Insurance Co.; V. L. White, of the California Division of Industrial Safety, and Eric L. Pedley, of Pedley-Knowles & Co., San Francisco. J. J. Higgins, safety supervisor for Bethlehem Steel, made the company's erection yard available for the tests.

Pedley-Knowles & Co. supplied the safety nets used in the test program. The nets use fiberglass roving impregnated with polyester resin plastic to secure the Manila rope at all mesh and edge rope crossings.

Nets of this kind were first used in heavy construction during the installation of the bottom lateral system of the Golden Gate Bridge in 1954 (ENR June 24, 1954, p. 46). The same contractor, Judson-Pacific Murphy Co., used these nets on subsequent major bridge jobs, including the Richmond-San Rafael Bridge and the Glen Canyon Bridge. Similar nets were used by American Bridge Co. on the Carquinez Bridge.

Fallout Tags Raindrops With Radioactive Tracer

A report prepared jointly by the atomic energy commission and the U. S. Geological survey for the Senate Select Committee on national water resources describes a peaceful use of the atom being achieved with the aid of past nuclear bomb tests.

Tritium absorbed by raindrops from fallout of nuclear explosions will be measured at specific earth depths by sensitive radiological counting equipment.

Then, from harmless tritium-tagged water allowed to seep underground at later times, replenishment rates will be measured to determine recharge of natural underground reservoirs and the extent to which the reservoirs can be put to use.

Research projects for developing atomic techniques for detecting and measuring groundwater sources are now under way on the Wharton Tract Watershed near Burlington, N. J., on Black Earth Creek near Madison, Wis. and at Lake McMillan near Carlsbad, N. M.

OZALID NEWSLETTER

NEW IDEAS TO HELP YOU WITH ENGINEERING REPRODUCTION AND DRAFTING

Standard materials, plus new thinking, result in big time and cost savings.

How to break the halftone costs barrier

Some of the sharper repro men looking to cut the high cost of using halftones in quantity have come up with this little timesaver that goes for pennies per halftone. Here was the problem: 200 rush copies of 16 technical photographs were needed for a service manual . . . a total of 3200 prints. This job would usually run about $2,000 and take ten days . . . that was too long and cost too much.

A bright lad thought about their Ozalid whiteprinting equipment and worked out this procedure: First an 8" x 10" screened film positive was made by projection from a 4" x 5" negative, emulsion away from emulsion. This insured proper orientation of the print in the final stage.

Next, the film positive and Ozalid black-line plastic-coated paper (105SZ) were processed in an Ozalid Printmaster 810 at a rate of 12 feet per minute. The 42-inch width of this machine permitted two operators to work simultaneously, cutting total production time virtually in half! The choice of Ozalid paper Type 105SZ was an excellent one. It gave crisp; black-line images of great density due to the paper's plastic coating. The entire project took just under a fast six hours instead of the usual ten days, and cost about $100.

Total savings: $1900 and 9½ days of production time. Pretty smart, we think. By the way, we've got sample packages available for the asking that might very well give you the same dramatic results. Why not write us at Ozalid, Box YY4, Johnson City, New York. We'll be glad to help.

Looking for a fast case of the blues?

The happy kind, we mean. The clean, rich, decisive blue image that Ozalid's new Super-Speed Blue-Line (200SS) gives. And when we say fast, that's exactly what we mean. *Poor originals are copied up to ten feet per minute faster than with regular copy papers.*

This is the first Ozalid copy paper specifically designed for copying semi-opaque originals at higher speeds . . . at no sacrifice of line density in any sense!

But what does all this mean in practical benefits, other than increased production at no loss in quality?

Well, for one thing, it means that you can now do a fine job on semi-opaque material, such as one-sided letters, documents and bulletins, at the lowest cost of any copying process . . . even if they're printed on bond papers!

Another benefit is the clean, readable copies you can now produce from soiled, yellowed documents and low-translucency materials much faster than ever before.

Is that all? Not by a long shot. 200SS actually turns low-powered ultraviolet machines into pretty fast units. And the faster printing speeds mean faster return of the original after each cycle.

Why not try this superb, high-density blue-line paper today? It really makes sense. Just call your local Ozalid representative for a demonstration.

With the new streets—curbs and sparkling, silicon carbide-impregnated sidewalks of modern concrete

For 43 blocks of downtown streets, ...the pavement built to stay put

"The 'new look' of our downtown business district is causing plenty of excitement in and around Abilene!"

Says HENRY NABERS, *Abilene City Manager*

"Our bright new concrete streets and sidewalks are helping to bring shoppers back downtown. Business has really improved since the dedication ceremony.

"The durability of concrete and the low upkeep costs make it the best investment for our downtown area. The good experience with Abilene streets paved with concrete as far back as 1924 helped convince us of that."

In an all-out fight against "downtown blight", Abilene, Texas, modernized the entire business district with all new concrete streets in one giant renewal project.

Abilene shoppers and shopkeepers alike can expect a whole lifetime of enjoyment from their attractive, new concrete streets. Pavement is six inches of portland cement concrete on a 6-inch soil-cement subbase.

The new streets won't be blocked off for expensive surface build-up treatments every few years or torn up for

Abilene chose CONCRETE for 50 years and more!

major repairs. Even on the hottest days concrete doesn't get soft, tacky or slick. Traffic can't push its solid surface into ripples and washboards.

There are no "moving parts" in concrete to cause hidden wear. In fact, concrete grows stronger year by year. That's why engineers predict today's modern concrete pavements will far outlast any other type, serve 50 years and more!

Concrete pleases taxpayers, too. Maintenance costs run so low that the moderate first cost isn't just a down payment. Even on street lighting money is saved. Concrete reflects light, so fewer fixtures are needed. City electric bills go down.

Cities everywhere with urban renewal problems are going to concrete. It's the first big step in an effective modernization program.

PORTLAND CEMENT ASSOCIATION *A national organization to improve and extend the uses of concrete*

Regular asphalt surface shows wear, as does . . .

Asbestos-asphalt mix, but with less raveling.

Asbestos-Asphalt Surface Mixes Tested

Extensive laboratory tests on asphalt paving mixtures containing 2 to 3% by weight of total mix of short asbestos fibre indicate improved field performance as compared with conventional mixtures. Test strips have been laid in various parts of the country to study the performance of varied design mixes under actual vehicular traffic.

Interest in asbestos-asphalt mixtures goes back for many years. Asbestos is already used with asphalt bridge planks, bituminous joint filling compounds, seal-coating compounds, and paints for asphalt curbings and pavement. Depending upon specific use, asbestos in these materials adds toughness, weather resistance and resistance to cracking.

Several years ago Johns-Manville began studying the effects of short asbestos fibres on the basic physical properties of asphalt pavement mixes.

Research was at first restricted to the laboratory, but in recent years a number of test strips have been laid. One such strip was installed on Johns-Manville property in Asbestos, Quebec, in 1953.

This strip, 100 ft long, contained 2% of Johns-Manville asbestos fibre, as did a 300-ft strip also laid in Quebec in 1954. The 1953 strip was part of a mine haulage road with a 9% grade.

For six years the strip was subjected to extremes of weather and service.

Raveling occurred in a similar section of standard paving mixture, but the asbestos-asphalt showed no signs of exposed aggregate. The standard pavement was resurfaced in 1958, while the asbestos-asphalt strip continues to give virtually maintenance-free service.

A total of 18 test strips in eight states and one Province in Canada are under study. These strips have been laid with design mixes containing numerous combinations of percentages of asbestos and asphalt, ranging from 1 to 3% asbestos and 6.5 to 8% asphalt. The purpose of these strips, and of collateral laboratory tests of individual design mixes, is to determine what balance between asbestos and asphalt will give optimum performance in specific applications.

In a paper presented at the 39th Annual Meeting of the Highway Research Board in January, J. H. Kietzman of Johns-Manville describes some of the tests and their results. Included are static and dynamic tensile tests, static indentation tests, ASTM compression tests, low temperature impact tests, and weatherability tests.

Mr. Kietzman reported that the addition of 2 to 3% of asbestos fibre achieved the following benefits:

- An allowable increase in asphalt content of from 1 to 2% by weight at a given stability, indicating greater flexibility and durability. Conversely, increased stability may be achieved with a specified asphalt content.
- Increased resistance to long-term plastic deformation at high temperature (140 F).
- Additional resistance to cracking caused by oxidation and expansion-contraction cycling during weathering.
- A 100%, or greater, increase in repeated-blow impact strength at 0°F.
- The ability to sustain ultimate load beyond the elastic limit under rapid loading.

Researchers believe the asbestos fibres perform two general functions in the paving mixture. They act as a structural reinforcement within the asphalt binder, and they allow a range of asphalt content permitting a corresponding range in flexibility. In asphaltic mixtures, a chemisorption of the binder apparently occurs on the fibre surface, which, together with its high surface area, makes for chemical and mechanical retention of binder.

Adding from 2 to 3% asbestos fibre to standard mixes will increase the laid cost of the asphalt mix by 15 to 25%. Little or no equipment modification is required. Secondary benefits, observed in laying test strips, directly affect the work of the paving contractor. For example, the asbestos seems to inhibit segregation of constituents after removal from the pug mill. Also, the upper limits of paving placement temperatures are less critical with asbestos added.

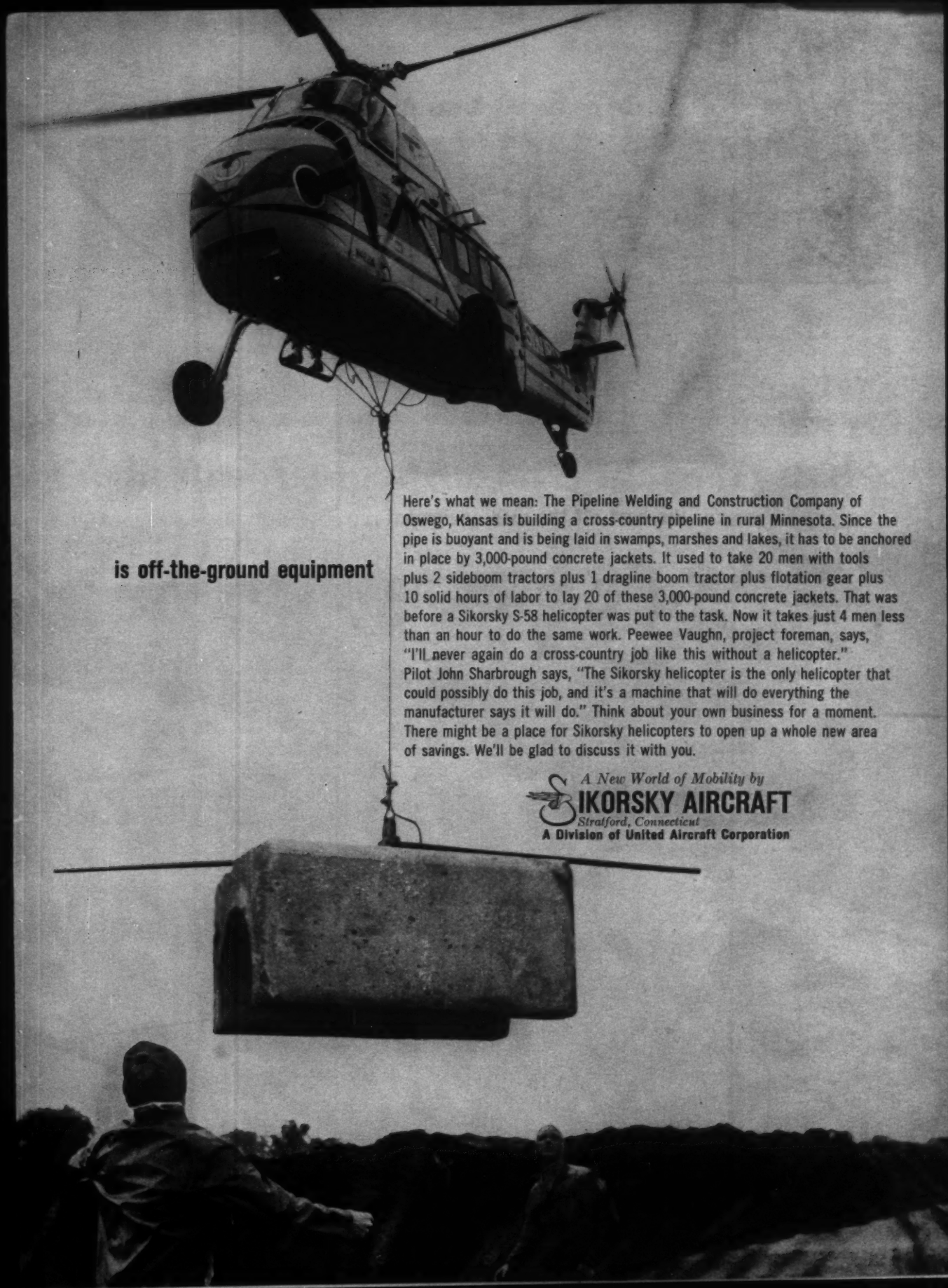
Research Pays Dividends In Empire State Housing

A three-year, $60,000 research program sponsored by the New York State Division of Housing promises to pay off in savings many times the research cost.

New materials approved for use in the housing agency's projects include:

- Plastic tile applied in liquid form to interior partitions and exterior walls. Supplanting ceramic tile in a 134-unit housing project, it will save about $18,000 in construction costs.
- Cement enamel can also replace ceramic tile. On a 1,000-unit project with 150,000 sq ft of public hall area, total saving would be about $100,000.
- Translucent plastics. These materials can save replacement costs for glass breakage in lobbies and stairways.
- Frameless closet doors that pivot on joints attached only to floors and ceiling. These doors are $20 per unit cheaper than conventional framed doors.

the best off-the-road equipment . . .



is off-the-ground equipment

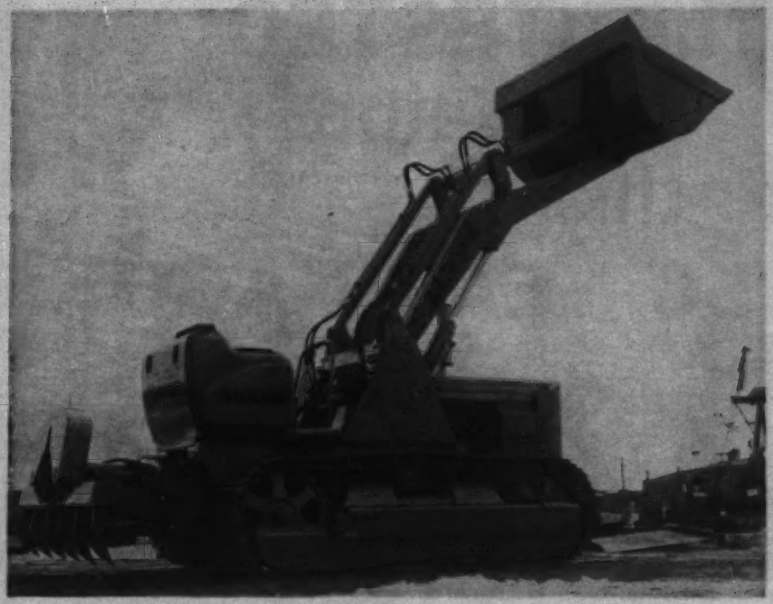
Here's what we mean: The Pipeline Welding and Construction Company of Oswego, Kansas is building a cross-country pipeline in rural Minnesota. Since the pipe is buoyant and is being laid in swamps, marshes and lakes, it has to be anchored in place by 3,000-pound concrete jackets. It used to take 20 men with tools plus 2 sideboom tractors plus 1 dragline boom tractor plus flotation gear plus 10 solid hours of labor to lay 20 of these 3,000-pound concrete jackets. That was before a Sikorsky S-58 helicopter was put to the task. Now it takes just 4 men less than an hour to do the same work. Peewee Vaughn, project foreman, says, "I'll never again do a cross-country job like this without a helicopter." Pilot John Sharbrough says, "The Sikorsky helicopter is the only helicopter that could possibly do this job, and it's a machine that will do everything the manufacturer says it will do." Think about your own business for a moment. There might be a place for Sikorsky helicopters to open up a whole new area of savings. We'll be glad to discuss it with you.

A New World of Mobility by

SIKORSKY AIRCRAFT

Stratford, Connecticut

A Division of United Aircraft Corporation



No Stalling in Crawler Tractor

A 59-hp crawler tractor, equipped with torque converter and instantaneous full-power reversing shuttle, is available with either diesel or gasoline engine, a five-speed transmission. Five forward speeds range from 1.3 to 7.25 mph.

The Motrac tractor has the so-called "heel-and-toe" forward-reverse direction control. This feature, called the "Hydro-Shuttle," in conjunction with dry-type torque converter, is said to prevent engine stalling even under full load and to afford very fast and smooth work cycles. The machine is of all-steel forged and welded construction. It is a five-roller crawler with a cantilever-supported top idler.

The loader is mounted on the cross shafts and secured at four points. The dozer has a four-point mounting on the track frame. The scarifier is mounted on two arms, bolted to the differential housing. Other auxiliary equipment, such as backhoes, side-booms, winches, are easily mounted on the tractor. Minneapolis-Moline Co., Hopkins, Minn.

Easy-to-Handle Motor Scraper

The TS 360, an all-hydraulic motor scraper with a heaped capacity of 30 cu yd, and struck capacity of 22.3 cu yd, is said by the manufacturer to be fast, efficient and easy to handle.

It is powered by a turbo-charged diesel engine that develops 340 hp at 2,000 rpm and moves the 63,150-lb unit at speeds up to 26.3 mph. An air actuated inertia brake located on the counter shaft makes it possible to shift from low to higher speeds without double clutching.

A tandem pump, gear driven from the engine crank shaft, provides the hydraulic pressures for steering and for bowl operation. Double acting bowl lifts jacks apply a positive downward force on the bowl to insure efficient cutting and loading of heavy material. Ejection of the material is forced by twin, telescoping, hydraulic cylinders with rams pushing from the center of the ejector.

Double acting steering jacks and multiplier links permit a 90 deg turn on a one sixth turn of the steering wheel. The turning radius of the unit is just under 18 ft.

Traction of the TS 360 is said to be high. Four 29.5 x 35 tires provide a broad gripping surface; the machine balance is such that two thirds of the empty weight is on the drive wheels and one third on the bowl wheels. On the loaded vehicle, the weight distribution is shifted so as to be equal on all wheels.

Scraping operations are controlled by two levers; one raises and lowers the bowl, the other controls movement of the apron and the ejector. Allis-Chalmers Mfg. Co., Milwaukee, Wis.

stop

FACTS YOU SHOULD KNOW ABOUT WALJOHN WATERSTOP

Check these 9 Points... and then Specify

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DO YOU KNOW?

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2. WALJOHN PVC* Waterstops are virtually indestructible.
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4. WALJOHN PVC* Waterstops are simpler to install than conventional metal or rubber waterstops.
5. WALJOHN PVC* Waterstops are manufactured in acccordance with U.S. Army Corps of Engineers Tentative Works Guide CE. #1402 and Ontario, Canada, Hydro-Electric Commission C-245-55.
6. WALJOHN PVC* Waterstops are joint-fused thermostatically by a specially made heat unit supplied by the Waljohn Company.
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8. WALJOHN PVC* Waterstops are prime-manufactured by the Waljohn Company in their own plant and certified to rigid specifications by one of America's oldest testing companies, The U.S. Testing Co., Inc..
9. WALJOHN PVC* Waterstops are being installed or have already been installed in every state in the Union in all types of construction.

An ample listing of installations is yours upon request.

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When this picture was taken, about 1910, engineers and builders had practically no backlog of experience with corrugated metal pipe. Armco Pipe had been on the market only a few years. So tests such as this gave buyers confidence.

Today there is a better test at your disposal—the test of more than 50 years of actual service. Through these service records you can view the performance of Armco Corrugated Metal Pipe in all kinds of jobs. Storm sewers, sanitary sewers, utility conduits, culverts, tunnels, stream enclosures and bridges are some of the applications in which Armco Pipe has proved itself.

Armco Pipe is a member of a full line of drainage and construction products made and sold by Armco. You can get complete facts on versatile Armco Corrugated Metal Pipe in our new catalog. Use the coupon to order your free copy. Armco Drainage & Metal Products, Inc., 6400 Curtis Street, Middletown, Ohio.

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☐ Have representative call.

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1. Inspection shows sewer in Pocatello, Idaho, installed in 1914, is in excellent condition. 2. Armco SMOOTH-FLO® Sewer Pipe being installed for real estate development. 3. This Armco Pipe functions as a conduit for utility lines under railroad. 4. Armco Research Engineer checks 20-year performance record of Armco Pipe under the Pennsylvania Turnpike. 5. Conveyor housing is a 96-inch diameter Armco Pipe.

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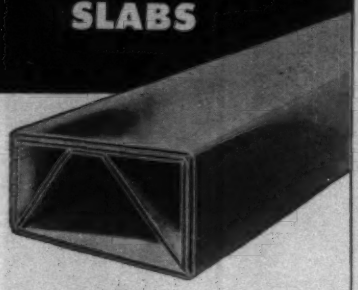
JAY-VOIDS

America's Only Asphalt Impregnated Corrugated Forms

PREVENT CRACKED SLABS



JAY-VOIDS offer builders a more positive void than now available through conventional methods. These TESTED and PROVED forms help prevent cracked slabs by providing space underneath the slab for movement of the earth.

JAY-VOIDS lightweight, simple one-piece form folds easily for fast assembly and placement . . . are shipped and stored flat.

JAY-VOIDS are made of patented FREEZURBOARD . . . the heavy-duty asphalt and wax impregnated corrugated board . . . assures top quality and greatest strength under adverse weather conditions. (Not to be compared with ordinary corrugated board.)

JAY-VOIDS are your cheapest insurance against cracked slabs. They save you money and assure top quality concrete construction.

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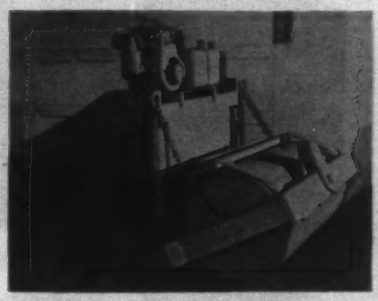
All-Purpose Tailgate Spreader

An all-purpose tailgate spreader, called the "Rollgate," is designed for spreading sand, salt, cinders, gravel, slag or other materials.

Features of the spreader include all welded steel construction, 8-ft-wide spread and ability to spread as little as 75 lb of chemicals per mile up to a 3-in. depth when seal-coating. The spreader is designed so that material in the dump truck can be emptied over the spreader without unhooking it.

The spreader has a sectionalized flexible keyboard that gives a metered spread and permits oversized objects to pass through. It is hydraulically driven either by connecting into an existing truck hydraulic system or by a separate P.T.O. pump and package. After the depth is set, the spreader can be operated from the cab. Good Roads Machinery Corp., Minerva, Ohio.

GraderrolleR Now Self-Lifting



An improved version of the GraderrolleR—the Model GR-42 HG—features an independent, gasoline-engine-driven, hydraulic pump. The unit is a general use road surfacing roller for attachment to the rear of a motor grader.

Originally designed exclusively for Caterpillar motor graders, the new model is adapted to other motor graders with only minor modifications.

The unit mounts a Wisconsin Model BKN single-cylinder, air-cooled gasoline engine on the top of the roller frame. Developing 7 hp at 3600 rpm, the engine is connected directly to the hydraulic pump. The GraderrolleR can be operated independently of the grader engine.

Raised and lowered hydraulically, the roller uses the weight of the grader to exert up to 225 lbs of compaction per linear inch of its 42-in.-wide roller.

The roller is pivoted at the center and follows the road surface regardless of the grader's position during operations. Remote controls allow operating adjustments to be made from the grader operator's platform.

Spring tension scraper blades and a 35-gal automatic sprinkling system are designed to keep the roller free of asphalt during paving operations. Whenever the roller is lowered into operating position the sprinkling system automatically starts. Martin Co., 620 Andrews Ave., Kewanee, Ill.

Suspended Roof for New College Gymnasium

"Column-free on the inside" is the way the architect describes this exciting and wholly utilitarian structure. It is the Physical Education Building of the Central Washington College of Education, Ellensburg, Washington. It is 150 ft wide by 390 ft long and contains, among other things, a main gymnasium, upper gymnasium, field house, swimming pool, apparatus room, two four-wall handball courts, two classrooms, 14 offices and, locker rooms, dressing rooms, etc.

The suspended roof is actually floating, being slip-fastened to the exterior walls. There are twenty-eight 80-ft high prestressed concrete pylons. Each supports two pairs of 1-5/16 in. prestretched, galvanized bridge strands, which suspend the entire roof structure. The 56 cables, averaging 404 ft in length, were prestretched and accurately marked for all attachment points at Roebling's plant. This resulted in an easy, economical field erection procedure.

Spectacular new Health and Physical Education Building, Central Washington College of Education at Ellensburg, Washington.
Architect: Ralph Burkhard, A.I.A., Seattle
Structural Engineers: Anderson, Birkeland, Anderson, Tacoma
General Contractor: Earley Construction Company, Tacoma
Prestressed Concrete Fabricator: Concrete Technology Corp., Tacoma

Its 99,500 sq ft of floor space cost $14.15 per sq ft, including architect's fee and 4% sales tax, which is below average for a building of this size.

These basic details are indicative of the wide and varied benefits common to all suspended roof structures. Airline terminals and hangars, plants, gymnasiums, civic auditoriums — all are enjoying the free space afforded by suspended roofs.

Roebling's great experience with steel in tension leads naturally to its active role in the suspended roof field. Our findings, theories and interest in its every phase are offered to you at any time. Should you wish further details on this particular structure, or information of any nature dealing with suspended roofs, please do not hesitate to write Roebling's Bridge Division, Trenton 2, New Jersey.

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Moves 65,000 yards of dirt a day for jet-age new runway at

GULF MAKES THINGS

Nashville, Tennessee is making way for the jet age with a whopping $6,500,000 airport improvement program. As part of that program, Gregory-Burns-Waters Company, joint venture contractors, are moving 5,000,000 cubic yards of dirt for a new 10,000-ft. runway. And they're moving it at a rate of 65,000 yards a day!

To stay on schedule, each pan must average 95 trips each 10-hour shift, hauling more than 25 cubic yards of dirt per trip. Trip distance—up to 9,000 ft. A battering, gear-grinding pace? Sure. But the contractors know their equipment, and know how to shave downtime to a minimum. They're lubricating every piece of equipment on the job—between shifts—so that no time is lost in preventive maintenance. And, they're using this combination of Gulf fuels and lubricants that have job-proved themselves over the years; Gulf diesel fuel, Gulf Super Duty Motor Oil, and Gulflex A lubricant.

Says Jim Gregory of Gregory-Burns-Waters Company: "We haven't any time for equipment failure on this job. Of the few maintenance problems we've had,

Rough, hilly terrain was gouged, scraped and filled to become a 10,000-ft. runway. It required movement of 5,000,000 cubic yards of dirt. Fourteen pans averaged 95 trips during each 10-hour shift.

Boom! Blasting off rock layers during the leveling process. Gulf Rock Drill Oil kept drills running at peak performance for the task.

Blasted rock being loaded and carted away for fill. Gulf Super Duty Motor Oil kept shovel downtime to a minimum, while clean-burning Gulf diesel fuel and Gulflex A multi-purpose grease kept engines humming and wheels turning to complete the job in record time.

Left to right: Charles (Buddy) Gregory, J. B. Long, Gulf Sales Representative, Isham Gregory, James (Jimmy) Gregory, and Bill Taylor, Gulf Sales Representative. You can always rely on Gulf for on-the-job service.

Nashville Airport . . .

RUN BETTER!

none of them have been traced to fuels or lubricants."

On your next job, see for yourself how Gulf makes things run better. Phone your nearest Gulf office, and find out how quality fuels and lubricants from a prompt, dependable source of supply can trim down costly mechanical delays.

Before you turn the page, clip and check the coupon at right for a free copy of the 88-page "Gulf Contractors' Guide"—the lubrication and maintenance manual for heavy equipment.

GULF

GULF OIL CORPORATION
Dept. DM, Gulf Bldg., Pittsburgh 30, Pa.

Please send copy of "Contractors' Guide."

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Title_____

Company_____

Street_____

City_____ Zone____ State_____

SP-9740

Inset shows Smith tilters during plant erection. Towering 700-foot canyon walls almost dwarf the batch plant built by the Noble Company of Oakland, California.

Smith Tilters Will Mix 6 Million Yards of Concrete for Glen Canyon Dam

They'll pour concrete 16 hours a day, six days a week, for five years to build Glen Canyon Dam. When it is completed in 1964, 6 million cubic yards of concrete will have gone into this "Giant of the Colorado" — fifth highest dam in the world.

Behind its mighty arched wall, the Colorado River will slowly and relentlessly create a lake that will extend 186 miles upstream . . . and may take 20 years to fill!

Power from its eight hydraulic turbines will serve five states: Arizona, New Mexico, Utah, Colorado, Wyoming.

Everything about Glen Canyon is big. And everything that goes into it has to be the best, including the equipment to build it. Out there in the desolate Colorado River canyon in southern Utah, nothing less than the best is considered for a job like this. Significantly, T. L. Smith Tilter mixers were selected for the concrete batching plant.

SMITH

Mixing concrete for Glen Canyon is no "snap." Aggregate ranges from ordinary No. 4 size to hefty 6-inch boulders! It takes real "guts" to stand up under this constant battering, yet the six Smith 4-yd. Tilters are scheduled to do it for 5 years . . . discharging as much as 24 cubic yards of concrete every 3 minutes under peak operation.

Smith mixers are no strangers on the really big jobs. Smith mixers prepared all the concrete for Hoover Dam — just 150 miles downstream. And Flaming Gorge Dam — another spectacular structure in the Colorado River Storage Project — will be built with Smith-mixed concrete.

You may never need to mix 6 million yards of concrete, but isn't reliable performance like this your best assurance of real long-run economy? If so, it will pay you to find out more about Smith mixers. Call your local Smith representative, or write directly to T. L. Smith Company, Milwaukee, Wisconsin or Lufkin, Texas.

Affiliated with Essick Mfg. Company, Los Angeles, California. AD-4113

Huber-Warco Redesigns Graders

A series of standard transmission motor-graders is made up of Models 8-D, 9-D, 10-D and 11-D. Machines in this series retain such Huber-Warco features as a box-section, single-member frame, the patented saddle for complete blade control from the cab, high axle clearance and heavy-duty tandem drive cases.

The 8-D is powered by an International UD-370, which develops 83 hp. Three 100-hp. engines are available in the 9-D. Power for the 10-D can be supplied by any one of three engines, each of which develops 125 hp. The 11-D is powered by a Cummins H-6-B1, which develops 160 hp.

A transmission of new design features full constant mesh, including the range shift. This feature is said to make the shifting operation easier and to protect the gears. Six speeds forward and reverse are standard on all models. Optional creeper gears give three additional speeds in both forward and reverse.

Various improvements have been incorporated to provide greater operator comfort and better visibility. Other design refinements include a reduction in the turning radius of 4 ft.; additional lean on the front wheels; redesigned moldboard and drawbar. The power sliding moldboard is said to have extra strength.

The bulldozer has been changed so that the dozer and push-block fit on the same heavy-duty bracket, which is welded to the frame head section. The blade is 9 ft wide and 36 in. high. The pushblock is 32 in. wide and 30 in. high, and is adjustable up and down by repositioning bolts. Huber-Warco Co., Marion, Ohio

Jay Tampers Now Have Increased Tamping Force

An increase in tamping force of as much as 50% and an increase in travel speed of as much as 100% are said to result from improvements in the 1960 line of Jay tampers. The tamper is manufactured in three models—J-13, J-18 and J-36.

A new plate contour is said to provide faster and better tamping in heavy soils. The new models are also provided with an improved handle with a tubular loop. It is easier to grip and helps the operator turn the machine in a shorter radius, according to the manufacturer.

Plates for the Model Jay-13 are 13, 18 and 24 in. in width. Model J-18 is supplied with plates 18, 24 or 30 in. wide. Model Jay-36, largest of the line, has plates 24, 30 and 36 in. in width. All models are equipped with four-cycle Wisconsin BKN engines of 6.8 hp at 3,600 rpm and are said to provide a compacting force equal to that of a 10-ton roller. Leukart Machine Co., Inc., Columbus, Ohio.

Tamping Roller Travels Either Way Equally Well

A self-propelled tamping roller (Model SP-112-48) is equipped with a 70 hp diesel engine and three-speed transmission. Ballasted, pressures up to 510 psi may be obtained with this new model.

The roller is said to operate equally well forward and reverse, making it especially suitable for widening work on highways. The manufacturers also claim savings of 20% in time and cost due to elimination of wasted time in turning. Shovel Supply Co., Inc., P. O. Box 1369, Dallas 21, Tex.

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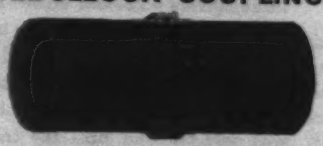
Gives you light weight without sacrifice of strength and safety through its distinctive lockseam-spiralwelded structure. Easy to handle and install. Diameters—4″ to 30″ in wide range of wall thickness.

Plus NAYLOR WEDGELOCK COUPLINGS



A positive connection, securely anchored in the standard weight grooved ends. A hammer is the only tool required to connect or disconnect it. Available in both low-pressure and heavy-duty types.

Write for Bulletin No. 59 on pipe, fittings and couplings.

NAYLOR PIPE Company

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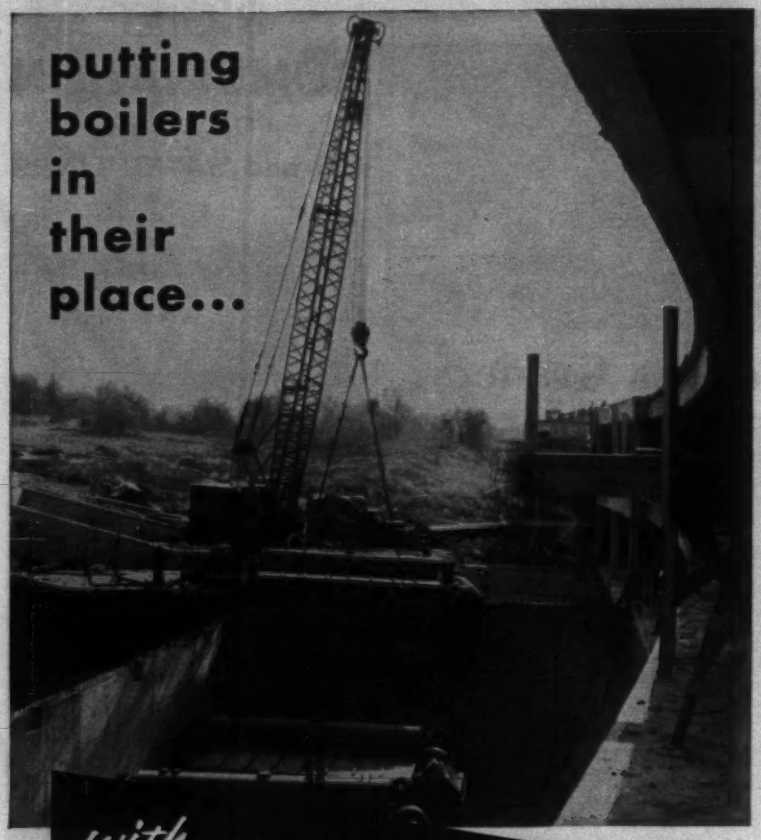
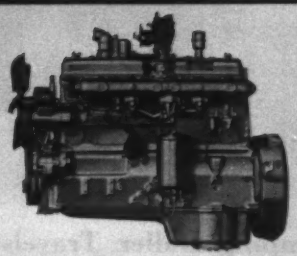
Eastern U. S. and Foreign Sales Office
60 East 42nd Street, New York 17, N.Y.



with WAUKESHA power

Three boilers—28 tons each—are being safely lowered from flat bed trailers to the cellar floor—35 ft. down—at the new I.B.M. Research Center, Yorktown, N. Y. And that was only half the job. The crane had already transferred the boilers to trailers from railway flat cars. And it required from 90 to 110-degrees of swing to handle these boilers. That's real maneuvering for a 20-ton crane. This Waukesha-Engine-powered Bucyrus-Erie 30-B Crane did it neatly. Gerosa Crane Service, Bronx, N.Y. are the owners.



Powering Crane (boom)—140-GZ Waukesha Gasoline, six cylinders, 4⅝-in. x 5½-in., 554 cu. in. displ.

Waukeshas are standard for crane operation. Model 140 Series gasoline engines available up to 225 hp. Other models for cranes or shovels, up to 1200 hp., Diesel or gasoline. Send for descriptive bulletins.

WAUKESHA MOTOR COMPANY, WAUKESHA, WISCONSIN

NEW YORK TULSA LOS ANGELES

Factories—Waukesha, Wisconsin, and Clinton, Iowa 476

Engine Stroke Teams With Tampers Vibrator Stroke

The Stow-Synchro-Tamper is designed to synchronize the vibrator stroke with the engine stroke to deliver a 2,200 lb force with each blow. Vibration frequency is rated at 2,400 per minute.

Vibration dampers isolate the handle, reducing operator fatigue.

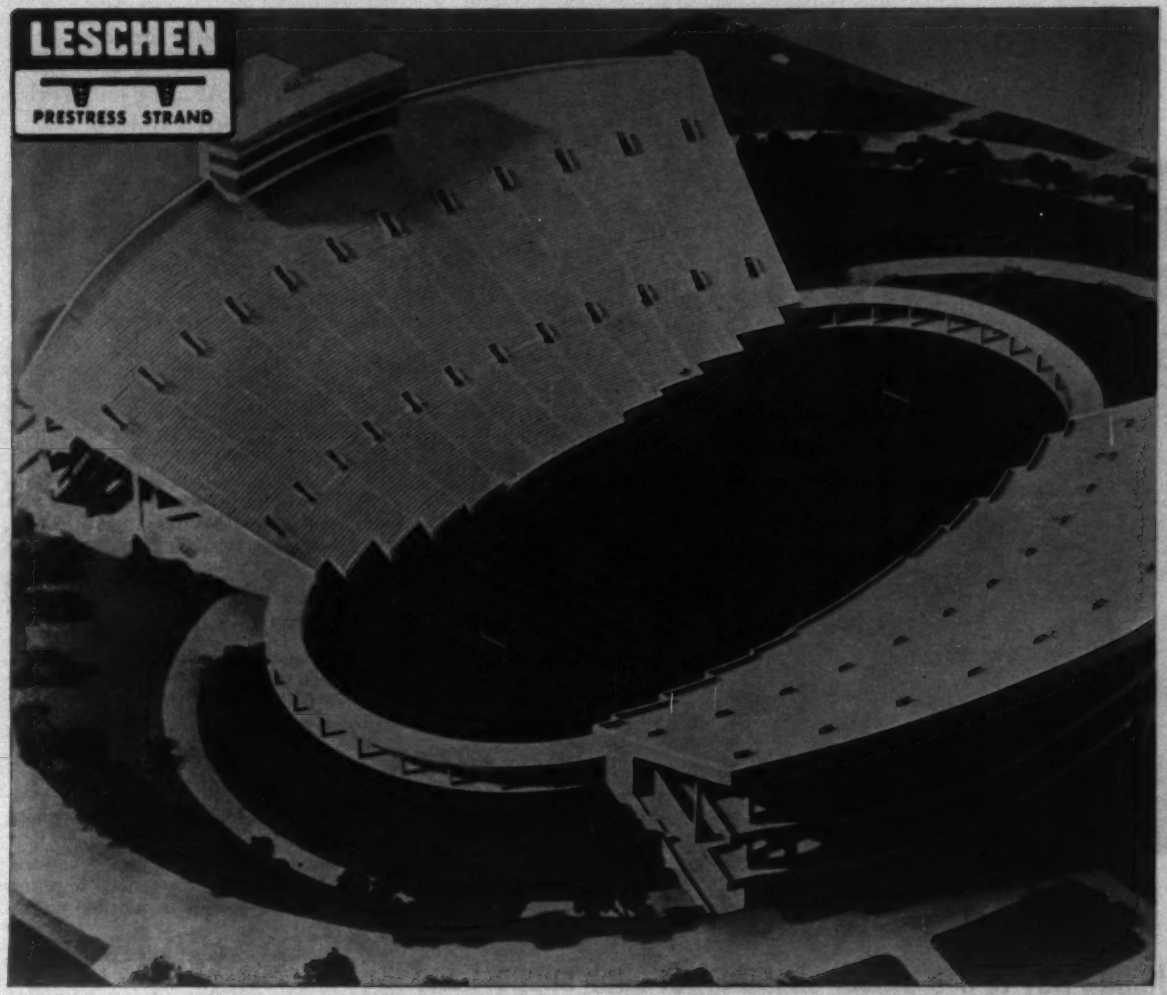
Fuel tank for the 3.8 hp gasoline engine is mounted under the engine. This reduces the danger of it vibrating loose, according to the manufacturer.

Standard shoe width is 18 in.; shoes of 12- and 24-in. width are also available. Stow Manufacturing Co., 19 Shear St., Binghamton, N. Y.

Road Maintenance Trucks Mount Snow Equipment

Duplex Highway Maintenance Trucks include four- and six-wheel models especially built for mounting rotary plows in several sizes. One way, or V-type displacement plows can be mounted as well. Duplex units can be equipped with a snow plow, underbody scraper, and a dump body all on the same truck.

The units are available in models ranging from 20,000 gvw to 37,000 gvw in several wheelbase lengths up to 188 in. Gasoline engines range from 140 to 210 horsepower. They are International Harvester, Continental, and Waukesha. GMC and Cummins diesels power Duplex trucks with up to 335 horsepower. Duplex Div., Warner & Swasey Co., 830 E. Hazel, Lansing, Mich.

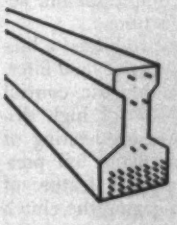


$300,000 contract for the stadium's seat foundations was awarded to Stress-Con Division of Shute Concrete Products, Inc., Richmond, Indiana. Architects—Eggers & Higgins, NYC. Structural Consulting Engineers—Severud—Elstad—Krueger—Associates, NYC. Consultant on Prestressing—Philip Ostendorf, Dayton. O. General Contractors—Hubert, Hunt and Nichols.

Prestressed Concrete Cuts Indiana Stadium Maintenance

Nearly 14 miles of prestressed concrete channels have been used for 70,000 seats in Indiana University's new stadium at Bloomington to be completed this Fall. These channels average 23 feet long. Leschen Prestress Strand was used in their fabrication.

A most versatile building material, prestressed concrete is receiving ever-increasing acceptance. Its unique properties such as thinner sections, longer spans, lower depth-to-span, minimum maintenance, less weight and economy appeal to architects and engineers striving for design freedom. In this stadium, economy through mass production in the prestressing plant was a key element in the decision.



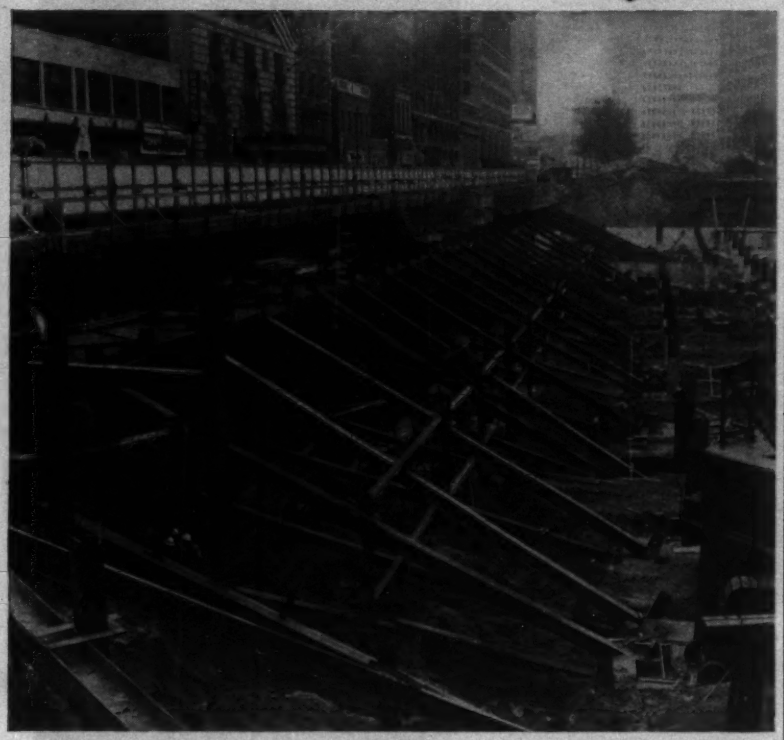
TALK WITH A NEARBY PRODUCER OF PRESTRESSED CONCRETE—He can discuss technical problems, point to examples of prestressed construction in your area, and advise on costs and delivery of beams from his yard.

OR WRITE LESCHEN—Leschen supplies producers with the tensioning material—prestress strand. To insure uniform production of highest quality tensioning steel, Leschen has installed the world's newest and most modern wire mill and other specialized equipment. Write for literature giving typical uses and engineering data. Leschen Wire Rope Division, H. K. Porter Company, Inc., St. Louis 12, Mo.

LESCHEN WIRE ROPE DIVISION PORTER **H. K. PORTER COMPANY, INC.**

PORTER SERVES INDUSTRY with steel, rubber and friction products, asbestos textiles, high voltage electrical equipment, electrical wire and cable, wiring systems, motors, fans, blowers, specialty alloys, paints, refractories, tools, forgings and pipe fittings, roll formings and stampings, wire rope and strand.

ANOTHER PROBLEM SOLVED BY SPENCER, WHITE & PRENTIS



ALTERNATE BRACING, NO WALERS

Unique way to use timber sheeting for bank support and back form proves both practical and economical

Project: Military Park Underground Parking Garage, Newark, N. J.
General Contractor: Terminal Construction Corp., Wood-Ridge, N. J.
Consulting Engineers: Weiskopf & Pickworth, New York City
Architects and Engineers: Frank Grad & Sons, Newark, N. J.

In the above-pictured installation of horizontal wood sheeting, the braces are positioned at every second soldier beam. Ordinarily such alternate bracing would require walers; instead, this special design successfully substituted a system of tensioned struts and angles.

Without any encumbering walers, the sheeting served perfectly as a back form—after it had supported a trench (which was needed to relocate an existing sewer line) and had also maintained the street as the contractor excavated 36 ft. to subgrade for the main structure.

The special plan—by Spencer, White and Prentis—proved both practical and economical. Can we be of service to you?

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. . . New Products

Underslung Arms Featured On Front-End Loader

A new model rubber-tired front-end loader mounts a bucket with 1¾-cu yd capacity and features underslung bucket arms with 40-deg tipback of the bucket at ground level.

Maximum dump height under the bucket edge is 9 ft. Forward reach at 7-ft dump height is 5 ft 2 in.

The unit has an Allison Torqmatic full reversing transmission, with three speeds forward and reverse ranging from 3.3 to 27 mph. It incorporates four-wheel drive Timken-Detroit Planetary axles with torque proportioning differential. Power is supplied by a Hercules 107-hp gasoline or diesel engine. N. P. Nelson Iron Works, Inc., 850 Bloomfield Ave., Clifton, N. J.

Two Ejectors Are Added To Sewage Equipment Line

A compact pneumatic sewage ejector has been introduced for small dwellings where it is necessary to raise sewage to a gravity sewer line or septic tank on the site. The automatic unit has a capacity of 15 gpm.

The manufacturer describes the pump as ideal for servicing in a development a few individual dwellings that are too low for gravity sewer connection, hence avoiding a general lowering of the entire system or possible pumping of all sewage.

Another addition to this maker's line is a 30 to 100-gpm sewage lift station that can be installed either as a separate low-capacity lift station or as an accessory pump for the "Oxigest" sewage treatment plant. Smith & Loveless, Box 8884, Kansas City 15, Mo.

'Blue Brute' Compressor Stacks Cylinder Stages

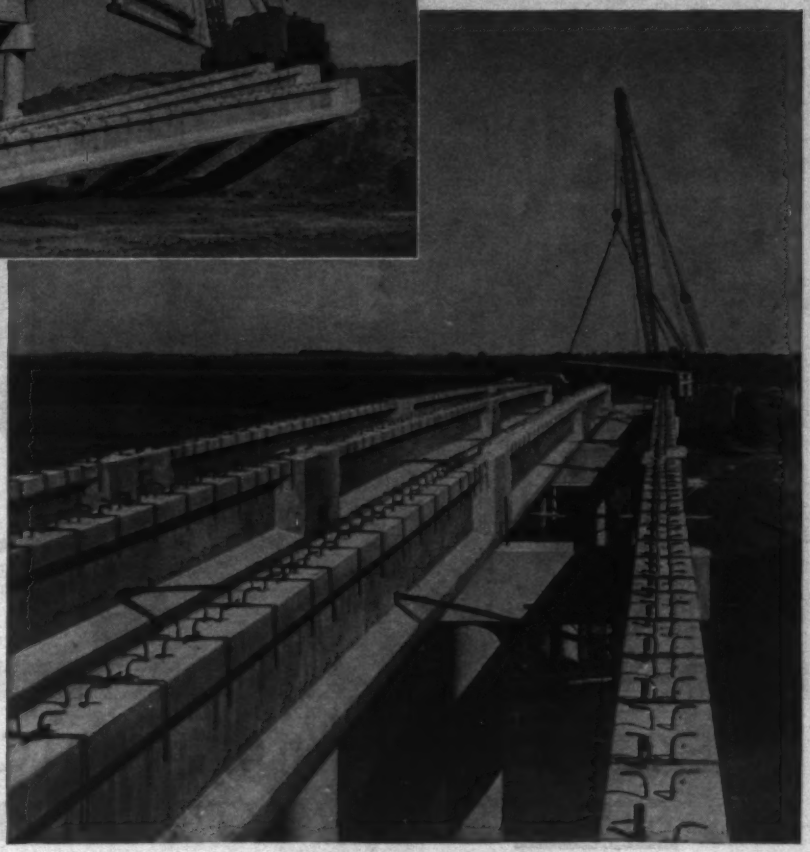
In the Worthington 900 cfm "Blue Brute" portable rotary compressor, the second-stage compressor cylinder is directly under the first stage. This provides accessibility, easy maintenance and self-draining of compressor oil, according to the manufacturer.

The Blue Brute has two filters: a lifetime unit and an inexpensive final filter.

The compressor's automatic control stops the engine in case of high discharge air temperature, overheating of cooling water or low engine oil pressure. The interlock control feature of the clutch prevents engaging the clutch while the engine is running, and the cutout switch prevents starting the compressor with air pressure in the air receiver. Worthington Corp., Harrison, N. J.

End span beams are 42′ 7″ long. All beams have a depth of 45″.

Beam placement nears completion. Center span beams are 67′ 8″ long.



Owner:
North Dakota Highway Department

Contractor:
Otto J. Eickhof & Sons, Inc., Crookston, Minn.

Manufacturer of Prestressed Beams:
Concrete Sectional Culvert Co., Fargo, N.D.

Prestressed Concrete for NORTH DAKOTA BRIDGE

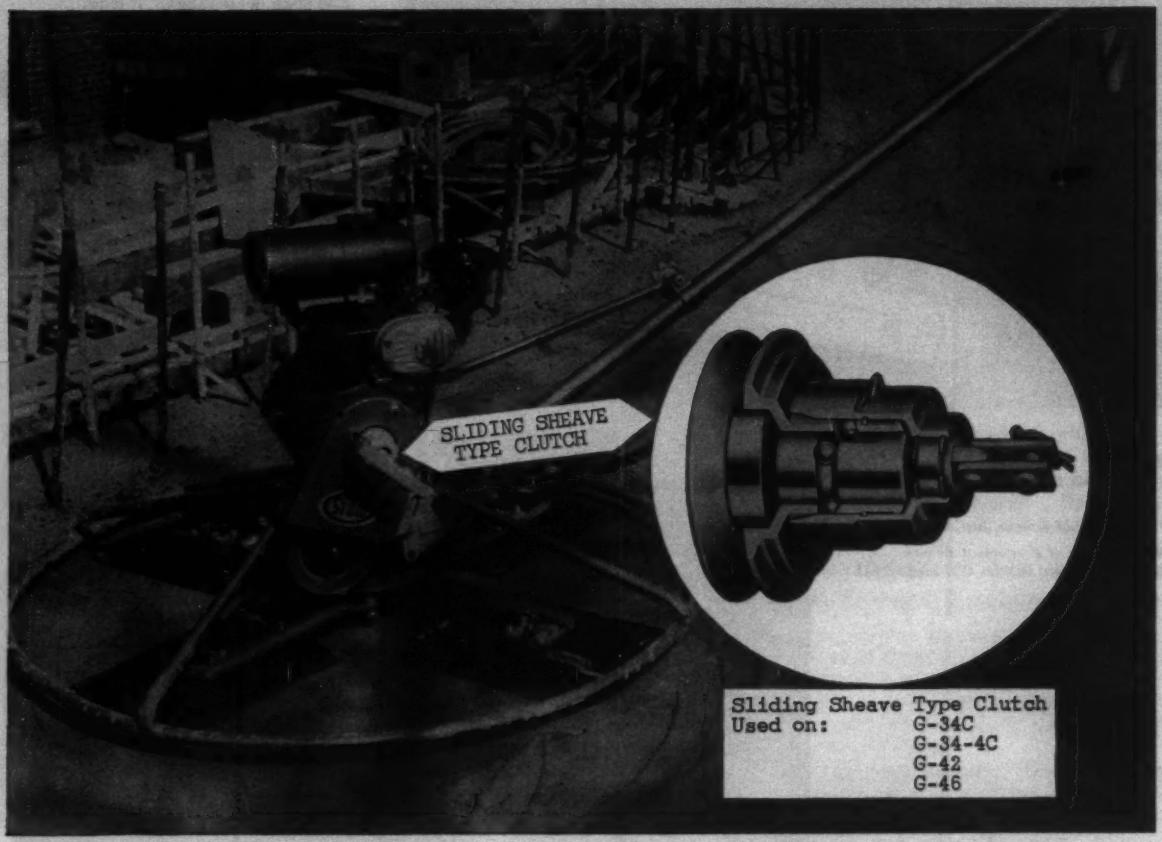
As the Interstate Highway program moves forward, an increasing percentage of its structures is being designed for prestressed concrete beams. The reasons: low first cost, minimum maintenance, fast, easy erection, and attractive appearance.

A recent example is this bridge over new Interstate Route 94 near Fargo, North Dakota. It is constructed of 16 prestressed I beams, eight of which are 67′ 8″ long; the other eight are 42′ 7″ long.

In the manufacture of these beams, Concrete Sectional Culvert Company used Lehigh Early Strength Cement for maximum production efficiency. Early removal of units and quick re-use of casting beds permitted a most economical casting cycle.

This is typical of the advantages of Lehigh Early Strength Cement in modern concrete construction. Lehigh Portland Cement Company, Allentown, Pa.

LEHIGH CEMENTS



EXCLUSIVE MANUAL CLUTCH MAKES STOW TROWEL TOP PERFORMER

Contractors and builders who have used them tell us that STOW Roto-Trowels do the fastest, most ecnomical job on floating and finishing operations.

One big reason for this top performance is STOW'S exclusive manual clutch control which permits easier engine starts at any throttle setting, higher efficiency, less maintenance, faster and smoother finishing operations. The STOW Roto-Trowel is safer too, since the manual clutch automatically stops blade rotation within 1/6 second after the operator releases the handle, without stopping the engine!

Highly maneuverable, the STOW Roto-Trowel features a pitch control on the handle, so operator can change blade pitch easily, while the blades are in motion. Fixed guard ring permits working right up to walls and supports without danger.

STOW Roto-Trowels are available in 9 different models, ranging from 29" to 46" diameter, with 3-blade or 4-blade trowel assembly. For additional information, contact your nearest STOW Distributor or write Stow Manufacturing Co., Binghamton, N. Y.

STOW Manufacturing Company
Dept. E-5, 19 Shear St.
Binghamton, New York

Please send me Concrete Equipment Catalog 580 and name of nearest distributor.

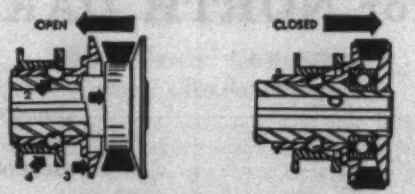
NAME . . . . . .

COMPANY . . . . . .

ADDRESS . . . . . .

CITY . . . . . STATE . . . . . .

HOW IT WORKS



When the Clutch is disengaged, the sheaves of the pulley are open as shown. The belt rides slack on the outer race of a free running ball bearing.

To start trowel blades, the operator engages the clutch. The sliding sheave which is mounted on ball bearings is carried forward into the closed position. This forces the belt up off the bearing so that it grips the sidewalls of the pulley.

This smooth clutching eliminates grab, results in a slow, even start. With this clutch, belt life is increased since there are no belt stretching problems.

To stop the trowel, the operator lets go of the clutch control. Instantly, the belt pushes the sliding sheave back to the open position and rides free on the idler bearing.

STOW MANUFACTURING CO.
Dept. E-5, 19 Shear Street
Binghamton, New York

Obituaries

Hubert E. Sargent, 68, chief engineer for the Vermont Department of Highways and past commissioner of highways for the state. Mr. Sargent has also been president of the Association of Highway Officials of the North Atlantic States and for ten years was a member of the executive committee of the American Association of Highway Officials.

Samuel D. May, 64, state highway commissioner for Virginia. Mr. May had been on the commission since 1953.

Henry B. Rust, 47, vice president and director of Rust Engineering Company, Pittsburgh, Pa.

Matthew W. Torer, 60, architect for the Osborn Engineering Co., Cleveland, Ohio.

Luke E. Smith, 73, organizer of the Quick Way Shovel Co. and the Smith Welding and Engineering Co., Denver, Colorado.

Robert T. Shafer, 65, civil engineer for Hamilton County, Ohio. While with the U. S. Corps of Engineers he worked on the Millcreek Barrier Dam and flood wall.

Earl A. Crump, 59, assistant chief engineer for the North Carolina State Highway Commission. He was one of the organizers of the State Highway Employees Association.

Frank T. Miller, 75, retired consulting engineer of Greensboro, North Carolina.

Christopher C. Carven, 61, chief architect for the engineering firm of Parsons, Brinckerhoff, Quade & Douglas. He designed the restaurants and service buildings for the Garden State Parkway and the Pittsburgh and Albany airports.

William C. Jones, 78, retired engineer in the Toledo, Ohio Water Division.

Charles Goetz, 54, civil engineer with the U. S. Army Engineer District, Baltimore, Md. Prior to his employment by the federal government, he had been with the Baltimore City Department of Public Works and the Pennsylvania Water and Power Company.

Benjamin J. Hay, 68, retired construction engineer for the Atlantic Refining company in Philadelphia, Pa.

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WRITE FOR ILLUSTRATED BULLETIN No. B-148

PEERLESS PUMPS

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Peerless Pump Division

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Books

Stresses in Plates And Shells Updated

THEORY OF PLATES AND SHELLS—Second Edition, by S. Timoshenko and S. Woinowsky-Krieger. 580 pages. McGraw-Hill Book Co., New York, Toronto, London. $15.

The new edition of this outstanding work dealing with the determination of stresses and strains in plates and shells includes many changes and additions.

Principal additions include a chapter on deflection of plates due to transverse shear, one on stress concentrations around a circular hole in a bent plate, a chapter on bending of plates resting on an elastic foundation and a chapter on bending of anisotropic plates.

Also incorporated is a chapter reviewing special and approximate methods used in plate analysis. It covers such subjects as influence surfaces in plate design, strain energy method for deflections, applications of finite difference equations to bending of simply supported plates and experimental methods.

The stress-function method has been added to the part on the membrane theory. The stress function is obtained from the solution of a partial differential equation, and its derivatives yield the membrane forces. Applications of the method to elliptic and hyperbolic paraboloids are given.

Planning for Efficient Use of Office Space

OFFICE BUILDING AND OFFICE LAYOUT PLANNING—By Kenneth H. Ripnen. 182 pages. McGraw-Hill Book Co., New York, Toronto, London. $10.

Office-building designers will find much useful information in this book, although it was written principally for management men. It deals with the planning, setting up and administering of office space for efficient, economical operation.

The book provides data on the amount of space required for various kinds of office work. It gives advice on how to make maximum use of space. And it discusses lighting, air conditioning, underfloor ducts, partitions and use of color.

An important segment of the book deals with the integration of functional, esthetic, structural and mechanical elements to produce layouts that not only are efficient but also are attractive.

In the appendix, the lessons of the book are illustrated by presenting plans of typical floor layouts in several large buildings.

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Rarely will you find an item of industrial, construction or road building equipment that won't run best and cheapest on Continental Red Seal power. The reason lies in specialization—in Continental's long-standing policy of engineering each model precisely to the work to be done. Whatever the machine . . . whatever its job . . . you can bank on it for abundant power at the speeds consistent with low fuel and upkeep cost.

Continental's ruggedness and rightness of design are helping to build prestige for more and more of the leading builders of specialized power equipment. It's wise when buying equipment of this type, to choose a make with dependable Red Seal power—power backed by specialized experience dating from 1902.

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Neenah, Wisconsin

Chicago Office: 5445 North Neva Avenue, Chicago 31, Illinois

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PERMANENTLY

Sewer pipe maintenance headaches disappear when you install "K&M" Asbestos-Cement Sewer Pipe.

Flow-stopping, pipe-clogging roots . . . no matter how cobwebby-thin . . . can't penetrate the exclusive patented "K&M" FLUID-TITE coupling . . . unmatched in its tight sealing. In repeated tests, "K&M" Asbestos-Cement Sewer Pipe successfully resisted infiltration even when external water pressure was 25 psi . . . the equivalent of a 58-foot head and way above field conditions.

Service remains continuous and uninterrupted . . . with fewer inspections and periodic cleanings. You can reduce treatment loads and costs . . . because infiltration is eliminated. Being made of quality asbestos fibers and portland cement, "K&M" Sewer Pipe does not corrode and is immune to electrolysis.

In fact, "K&M" Asbestos-Cement Sewer Pipe is a tax-saver at every stage of construction: planning and installation, as well as maintenance. Transportation and handling is less expensive, because "K&M" Asbestos-Cement Sewer Pipe is light in weight.

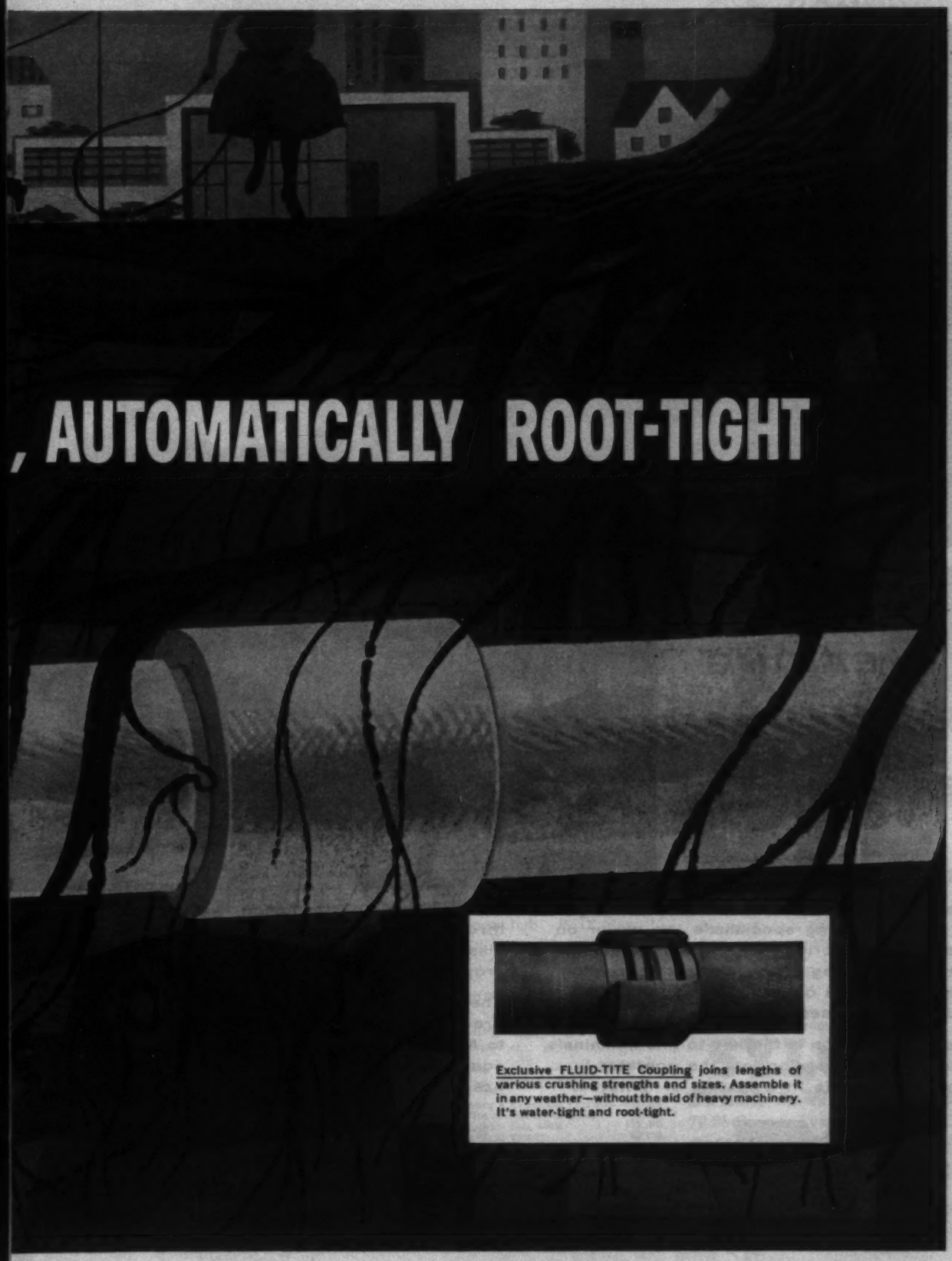
In short, practically indestructible materials plus eighty-five years of asbestos engineering give you the finest, most dependable sewer pipe available. That's why we urge you to write today for more information. Dept. P-1340

5 CRUSHING STRENGTHS OF K & M SEWER PIPE

Size Inches	Class 1500	Class 2400	Class 3300	Class 4000	Class 5000
6	1500	2400	3300		
8	1500	2400	3300		
10	1500	2400	3300	4000	5000
12	1500	2400	3300	4000	5000
14	1500	2400	3300	4000	5000
16	1500	2400	3300	4000	5000

K·M
BEST IN ASBESTOS

KEASBEY & MATTISON
Company • Ambler • Pennsylvania


, AUTOMATICALLY ROOT-TIGHT
Exclusive FLUID-TITE Coupling joins lengths of various crushing strengths and sizes. Assemble it in any weather—without the aid of heavy machinery. It's water-tight and root-tight.

SPEAKING OF VERSATILITY

A versatile 3/4 yd. Marion 35-M is making one bridge-building specialist's job easier on a state highway bridge contract in Indiana. From the wrecking of the old to the erection of the new spans only this Marion and a bulldozer were used.

Ease of conversion is the key to this machine's versatility. Split lagging lets the operator switch front ends in a matter of minutes.

Smooth, cool performance is assured through big-diameter swing clutches which dissipate heat quickly... even in demanding dropball work.

There are a host of other reasons why a growing number of contractors are looking to Marion for their bridge building crane equipment. Your nearest Marion distributor has the full story.

You get **MORE** *with* **MARION**

Marion Power Shovel Company, Marion, Ohio

A Division of Universal Marion Corporation

Adjacent hot lines are a safety problem on . . .

Bonneville Switchyard Job

Construction of the 0.9-mile Dallas Powerhouse-Big Eddy Switchyard 230 kv line No. 5, in Klickitat County, Wash. and Wasco County, Ore., for the Bonneville Power Administration, Portland, Ore., involves installing footings for and erecting three single-circuit steel towers (Nos. 1/1-1/3); stringing three ACSR Chukar conductors and two ⅜ in. high steel overhead ground wires from the powerhouse take-off to the Big Eddy switchyard deadend tower; and other related work and appurtenances.

The award at $24,925, to Charles T. Parker Construction Co., Portland, the low of five bidders, breaks down like this:

Group A, tower foundations	$ 4,800
B, tower erection	9,028
C, stringing conductor and overhead ground wire	11,097
Total	$24,925

Approximately 65 tons of transmission line footings and tower steel will be installed. On the basis of one operation per six tons of steel, the tolerance before payment for correction of misfabricated steel, is 11 operations.

The contractor must conduct his operations so as not to endanger the government's existing energized transmission lines adjacent to the project. He must furnish safety watchers while the conductor is strung from Tower No. 1/3 to the switchyard deadend structure.

The government furnishes the following materials and tools:

Footing steel, except reinforcing steel and concrete, which must be furnished by the contractor. These materials, delivered to the contractor at the Dallas Powerhouse, Oregon: Tower steel; insulators; conductor, conductor accessories and hardware; overhead ground wire and hardware; vibration dampers; tower signs; counterpoise materials; three sets wooden smoothing dies; four sets presses and dies; two pairs Armor rod wrenches and dies.

Prevailing wages for steel tower transmission line construction include: erection and wire, $3.75; assembly $3.36; equipment operators, $3.36; groundman, $2.81; head groundman, $2.98; certified welding, $3.75.

1C Chas. T. Parker Constr. Co., Portland, Ore..... $24,925
2 W. L. Ridge Constr. Co., Spokane, Wash..... 24,967

Bids: 2-2-60 Items	Unit	Quantity	Unit Prices 1C
Tower Foundations			
Grillage footing, type 6A	ea	4	$200.00
type 6D	ea	4	380.00
Rock footing, type D	ea	4	400.00
exc in footings, adjust for	cy	60	10.00
Reinf stl in spec footings, furnish & place	lb	800	0.15
Drill & grt reinf stl anchor dowels	lf	100	1.50
Radial counterpoise, 250' long, instal	ea	1	55.00
Tower erection			
Tower body, 55' type 6A2	ea	1	1,280
40' type 6D	ea	1	2,395
65' type D	ea	1	2,780
Leg extension, erect	lb	15,000	0.08
Steel in spec structs, erect	lb	10,200	0.08
Ground wire bracket, 6A (approx 798 lb), erect	ea	2	65.00
6D (approx 1,291 lb) erect	ea	4	100.00
Line number sign, instal	ea	3	5.00
Tower number sign, instal	ea	3	4.00
String Conductor & Wire			
3 Conductors, ACSR Chukar, string & sag	cir mi	0.9	7,000
vibration dampers, instal	ea	33	5.00
3 deadend assemblies	set	6	200.00
3 ACSR Chukar jumpers, make up & instal	set	2	200.00
make up	set	2	100.00
2 Overhead ground wires, ⅜" high-str stl, string & sag	cir mi	0.9	2,000
vibration dampers	ea	22	5.00
Safety watchers	man hr	16	7.00

Commence: Feb. 1960. Complete: Construction, 100 days after notice to proceed; cleaning, 30 days after completion of construction. Liq. dam: $100/day

High Wages Raise Costs On Alaska Access Road

To provide access to the ferry across the Tanana River north of Nenana, Alaska, 0.870 miles of the Tanana River slough extension of the Fairbanks-Nenana Highway will be drained and graded to a width of 20 and 28 ft.

The Bureau of Public Roads, Department of Commerce, Juneau, awarded the contract at $44,568 to Wright Brothers Hauling & Excavating Co., Fairbanks. The award was 29% under the engineers estimate, 21% under the second low and a whopping 66% under the high of eleven bids. B. D. Stewart, Jr., is construction and maintenance engineer Bureau of Public Roads, Juneau, Alaska.

The nearest railroad is 60 miles from the project.

The prevailing high wage rates paid on the job include: crane & power shovel operator, $5.34; tractor operator, $4.84; common laborer, $4.06.

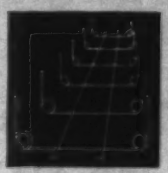
1C Wright Bros. Hauling & Excavating, Fairbanks $44,568
2 Wright Truck & Tractor Service, Fairbanks.... 56,530
11 McLaughlin, Inc., Great Falls, Mont..... 132,400
EE Bureau of Public Roads, Juneau..... 63,048

Bids: 2-18-60 Items	Unit	Quantity	Unit Prices 1C	2
Excavation, unclassified	cy	40	$1.20	$2.00
Borrow excavation, case 1	cy	30,000	0.30	0.70
rock, case 1	cy	6,000	2.42	3.00
Overhaul of borrow, case 1 (1000' freehaul)	yd mi	70,000	0.30	0.25

Complete: 60 cal day. Liq. dam. $50/day

"ON THE JOB WHEN YOU WANT THEM!"

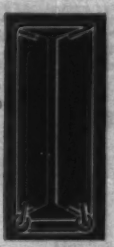
SYLGAB
STEEL and WIRE ACCESSORIES for Fast FIREPROOFING of Structural Steel



RIGID BEAM CLIP
5' lengths
— installed with lightning speed.
Made of #12 or #10 gauge galvanized.

★

HAUNCH STIFFENER
for beams over 16" deep. Made of #10 or #12 gauge galvanized wire.



★

TOGGLE HANGERS
More rigid than any wire. Used in conjunction with
SYLGAB SNAP-ON HAIRPIN CLIP
to tie main and cross furring together.

★

Sylgab Steel & Wire Accessories conform to the specifications of the Concrete Reinforcing Steel Institute.

Quality — Service
Ease of Installation

SYLGAB
STEEL & WIRE CORP.
79-05 Cooper Ave., B'klyn 27, N. Y.

BEAM CLIPS • SPECIAL COLUMN CLIPS
EXPANSIBLE CLIPS
STRAIGHT AND COIL WIRE
HAIRPIN CLIPS • TOGGLE HANGERS
FORM SPACERS • BAR ACCESSORIES
Request Catalog—Phone or Wire Collect

Materials Prices

Monthly Market Quotations by ENR Field Reporters

LUMBER, TIMBER, PLYWOOD PER M FT.B.M., CARLOAD LOTS F.O.B.

SOUTHERN PINE AND DOUGLAS FIR

All Southern Pine is No. 2 common or better and for No. 1 N. C. Box. (Prices in Bold Face)
All Fir boards, dimensions, planks No. 2, Fir small timbers and timbers are No. 1. Lengths up to 20 ft. (Prices in italics)

	1x6 s4s	1x8 s4s	2x4 s4s	2x6 s4s	2x8 s4s	2x10 s4s	3x12 Rgh	6x12 Rgh	12x12 Rgh	LONG LEAF Y. P. Merchantable grade up to 20 ft. 2x12 Rgh	12x12 Rgh	FIR PLYWOOD ⅜" Interior plyscored, C-D gr.	¼" Ply-form grade*
Atlanta n†	**$102.00**	**$105.00**	**$105.00**	**$105.00**	**$105.00**	**$110.00**	**$140.00**	.....	.....	**$150.00**	**$170.00**	**$145.00**	**$280.00**
Baltimore e	**103.00**	**103.00**	**107.50**	**107.50**	**113.00**	**113.00**	**125.00**	.....	.....	**175.00**	**190.00**	**175.00**	**275.00**
	120.00g	*124.00g*	*125.00g*	*128.50g*	*128.50g*	*128.50g*	*150.00g*	*$180.00*	*$170.00*	.....	.....	.....	.....
Birmingham n†r	**83.00**	**85.00**	**82.00**	**84.00**	**89.00**	**95.00**	**111.00**	.....	.....	**115.00**	**160.00**	**122.30**	**205.50**
	80.00	*80.00*	*83.00*	*81.00*	*81.00*	*98.00*	*88.00*	*85.00*	*88.00*	.....	.....	.....	.....
Boston ns	**106.00**f	**107.00**f	**111.00**f	**111.00**f	**111.00**f	**124.00**a	.....	.....	.....	.....	.....	**155.00**c	**280.00**c
	111.00	*111.00*	*120.00*	*120.00*	*121.00*	*127.00*	*158.00*	*164.00*	*170.00*	.....	.....	.....	.....
Chicago **	**119.00**	**122.00**	**117.00**	**130.00**	**138.00**	**139.00**	**134.00**	.....	.....	**162.00**	**162.00**	**152.00**	**254.00**
	125.00	*125.00*	*139.00*	*136.00*	*136.00*	*137.00*	*145.00*	*145.00*	*145.00*	.....	.....	.....	.....
Cincinnati n*	**102.50**	**103.75**	**98.50**	**98.00**	**104.75**	**112.75**	**121.00**	.....	.....	**138.00**	**125.00**	**94.00**f	**175.00**f
	110.00	*115.00*	*108.00*	*112.00*	*113.75*	*129.50*	*145.25*	*145.25*	*145.25*	.....	.....	.....	.....
Cleveland c**	**100.00**	**102.00**	**102.00**	**100.00**	**104.00**	**110.00**	.....	.....	.....	.....	.....	**124.00**a	**210.00**
	.....	.....	*115.00*	*110.00*	*118.00*	*116.00*	*140.00*	*140.00*	*140.00*	.....	.....	.....	.....
Dallas ‡	**95.00**k	**99.00**k	**103.00**k	**103.00**k	**103.00**k	**106.00**k	**135.00**	.....	.....	**138.00**	**160.00**	**112.50**ac	**200.00**ac
Denver n*	*Not in stock*		*119.50*	*120.50*	*119.50*	*122.00*	*140.00*	*162.50*	*170.00*	.....	.....	**148.50**	**240.50**
Detroit ‡	**138.00**	**140.50**	**140.00**	**136.00**	**143.50**	**143.50**	.....	.....	.....	**151.50**	.....	**160.00**pc	**230.00**pc
	159.25	*159.25*	*150.25*	*148.50*	*157.00*	*162.00*	*201.00*	*218.00*	*218.00*	.....	.....	.....	.....
Kansas City tn	**120.00**	**120.00**	**130.00**	**132.50**	**135.00**	**150.00**	.....	.....	.....	.....	.....	**150.00**	**215.00**
	120.00	*120.00*	*130.00*	*132.50*	*135.00*	*140.00*	*168.00*	*225.00*	*225.00*	.....	.....	.....	.....
Los Angeles znu	*100.00*	*100.00*	*100.00*	*100.00*	*100.00*	*100.00*	*136.00*	*145.00*	*145.00*	.....	.....	**128.00**	**225.00**
Minneapolis ov	*145.00*	*145.00*	*145.00*	*145.00*	*145.00*	*145.00*	*185.00*	*185.00*	*185.00*	.....	.....	**200.00**	**320.00**
Montreal *bp	**84.00**a	**90.00**a	**84.00**a	**84.00**a	**99.00**a	**125.00**a	.....	.....	.....	**120.00**	**120.00**	**119.25**	**225.95**
	160.00	*160.00*	*160.00*	*160.00*	*160.00*	*160.00*	*170.00*	*170.00*	*170.00*	.....	.....	.....	.....
New Orleans †n	**89.00**	**89.00**	**98.00**	**95.00**	**95.00**	**98.00**	**126.00**	.....	.....	**160.00**	**155.00**	**119.19**	**205.71**
	115.50	*115.50*	*115.50*	*115.50*	*115.50*	*116.50*	*122.00*	*135.50*	*135.50*	.....	.....	.....	.....
New York i	**116.00**	**116.00**	**128.00**	**128.00**	**128.00**	**130.00**	**250.00**	.....	.....	**250.00**	**250.00**	**123.20**a	**211.60**a
	.....	.....	*127.00*	*128.00*	*128.00*	*130.00*	*169.00*	*174.00*	*174.00*	.....	.....	.....	.....
Philadelphia nl	**110.00**	**112.00**	**112.00**	**110.00**	**112.00**	**110.00**	**135.00**	.....	.....	.....	.....	**150.00**h	**280.00**h
	.....	.....	*125.00*	*125.00*	*125.00*	*125.00*	*200.00*	*200.00*	.....	.....	.....	.....	.....
Pittsburgh sl	**135.00**	**135.00**	**135.00**	**135.00**	**140.00**	**140.00**	**183.00**	.....	.....	**148.00**	**188.00**	**225.00**	**295.00**
	138.00	*115.00*	*145.00*m	*150.00*	*150.00*	*150.00*	*225.00*	*225.00*	*225.00*	.....	.....	.....	.....
St. Louis lsl	**119.00**	**121.00**	**129.00**d	**129.00**d	**129.00**e	**130.00**e	.....	.....	.....	.....	.....	**169.30**ackj	**261.19**ach
	.....	.....	*138.00*	*138.00*e	*138.00*e	*138.00*e	*194.00*e	*194.00*e	*194.00*	.....	.....	.....	.....
San Francisco nz	*85.00*	*85.00*	*89.00*	*88.00*	*88.00*	*88.00*	*102.00*	*194.00*	*196.00*	.....	.....	**92–94**h	**170.00**h
Seattle n†	*65.00*	*72.00*	*75.00*	*75.00*	*75.00*	*76.00*	*90.00*	*98.00*	*98.00*	.....	.....	**105.00**aeg	**205.00**aeg
Toronto *	**87.00**a	**90.00**a	**88.00**a	**88.00**a	**90.00**	**89.00**a	**105.00**a	.....	.....	**89.00**a	.....	**258.00**	**305.50**
	92.00	*94.00*	*105.00*	*106.00*	*108.00*	*112.00*	*135.00*	*150.00*	*150.00*	.....	.....	.....	.....

† F.o.b. mill. * F.o.b. city, CL, out of yard. ** F.o.b. city, CL, direct mill shipment. ‡ Deliv. to contr. CL.

LUMBER: Bold Face Type, Southern Pine. Italics, Douglas Fir. *a Spruce. *b Federal tax exempt, add 6% mun. & prov. tax. *c 5M lots. *d 8, 10, & 12 ft. lengths. *e 8 to 16 ft. lengths. *f Hemlock *g No. 1 common. *j 8 ft. lengths. *k No. 3 common. *l Add 2% sales tax. *n Less 2% disc. 10 days. *o Less 2% disc. 10th. *p Less 1% disc. 10 days. *q fir: $80.25 in truck lots, fob job or CL, f.o.b. city. *r For f.o.b. city price add $8 for pine, $38 for fir eff. 1/1/58. *s asd truckiots. *t truckiots del. *u Retail LCL yard. *v Retail LCL, del. *w add 6% mun. & Prov. tax. *x add 4% sales tax.

* PLYWOOD (Plyform, oiled and edge sealed): Douglas fir, 4' x 8' panels, 5-ply sanded 2 sides, carload lots, delivered per 1000 sq. ft. surface. Seattle base price, Interior, moisture resistant, ⅜", $151.00; ¼", $171.00 Exterior, waterproof, ⅜", $155.00; ¼", $175.00 *a Delivered. *c Truck lots. *d A-C exterior. *e LCL. *f less 1%, 8 days *g less 2% for cash. *h less 2% disc, 10 days. *j add 2% sales tax.

GLASS, EXPLOSIVES, CHEMICALS, PILES, TIES

WINDOW GLASS

Discounts from jobbers list, Feb. 1, 1950a

	Single or Double Strength A quality	B quality
Atlanta	78%	80%g
Baltimore	74%d	74%d
Birmingham	82%f	82%f
Boston	72+10%p	72+10%p
Chicago	72%	72%
Cincinnati	74%	74%
Cleveland	74–2–10%	74–2–10%
Dallas	76%	76%
Denver	73.5%	73.5%
Detroit	74–10–10%	74–10–10%
Kansas City	76–10–10%	76–10–10%
Los Angeles	$12.88/17.32h	$10.45/14.13h
Minneapolis	71–10%	71–10%
Montreal	40–10–5%b	40–10–5%b
New Orleans	76%g	76%g
New York	79%f	79%f
Philadelphia	78%	80%
Pittsburgh	72%	72%
St. Louis	72–10–10%mo	72–10–10%mo
San Francisco	60%	73%
Seattle	$8.85/11.55hig	$6.41/8.67hjp
Toronto	$6.49/9.57h	$5.90/8.70h

Glass: *a Jobbers' list price per box, 14 x 20, ss, $42.75 for A quality, $37.80 for B quality; 14 x 20, ds, $60.00 for A quality, $52.75 for B quality. *b sales tax extra. *c 77% for single strength. *d From 6/15/52 list. *e 77% for double strength. *f Single strength; double strength, 83%. *g From 8/1/58 list. *h ss/ds, 40-in. *i 20 boxes min. *j CL quantity. *k eff. 12/58. *l eff. 10/15/58. *m less 2% disc, 10 days. *n less 1% disc, 10 days. *o add 2% sales tax. *p less 1% for cash. *q less 2% for cash

EXPLOSIVES

Per lb. 40% Ammonia Gelatin in 50 lb. cases delivered in 500 lb. lots

Atlanta	$0.2495
Baltimore	.2695
Birmingham	.2495
Boston	.2695
Chicago	.2695
Cincinnati	.2495
Cleveland	.2495
Dallas	.2770
Denver	.2695
Detroit	.2695
Kansas City	.2695
Los Angeles	.2695
Minneapolis	.2695
Montreal	23.20h
New Orleans	.2695
New York	.5030g
Philadelphia	.2695
Pittsburgh	.2495
St. Louis	.2695
San Francisco	.2695
Seattle	.2695
Toronto	.2695

Price of 60% Ammonia Gelatin is $0.15 per lb. higher than 40% in U. S., $1.75 per 100 lbs. higher in Canada.

Explosives: Cartridges of 1¼" diameter or over, in standard lengths. *g deliveries in certain areas must be by truck or by truck and boat, requiring extra charge. *h F.o.b. Beloeil (near Montreal), per 100 lb., lots under 2000#, wood cases, forcite, 40%. Forcite 60%, $24.30 in fiber cases: forcite 40%, $24.05; forcite 60%, $25.80.

40% Ammonia Gelatin price ranges in other than urban areas, per lb: (except Seismograph Grades)

	C/L 300,000 lb. lots	10,000 lb. lots	2,000 lb. lots	200 lb. lots
Group 1*	$0.2695	$0.2195	$0.2545	$0.2695
Group 2†	.2170	.2270	.2620	.2770

* All areas except those in Group 2 and N.J. cities of Bayone, Hoboken, Jersey City, No. Bergen, Union City and Weehawken † Florida counties of Manatee, Hardee, Highlands, Okeechobee, St. Lucieand south thereof; Idaho; Maine; Montana; New Mexico counties of Catron, Socorro, Lincoln, De Baca, Roosevelt and south thereof; Texas counties of Bailey, Lamb, Hale, Floyd, Motley, Cottle, Hardeman, Foard, Knox, Haskell, Jones, Taylor, Coleman, McCulloch, San Saba, Burnet, Williamson, Milan, Robertson, Leon, Houston, Angelina, Nacogdoches, Shelby and south thereof.

PILES

Prices per linear foot, fir and pine, rough peeled, f.o.b. cars, New York. Fir based on Washington and Ore. points to New York shipping area; pine under fifty feet based on freight from mid South, over fifty feet, on freight from deep South.

Dimensions	Points	Length	By Rail Pine*§ R	By Rail Fir R
12" at butt	6-in.	30 to 39-ft.	$0.38a	....
12"—2-ft. from butt	6-in.	40 to 44-ft.	.83	....
12"—2-ft. from butt	6-in.	45 to 49-ft.	.88	....
12"—2-ft. from butt	6-in.	50 to 54-ft.	.92	....
12"—2-ft. from butt	6-in.	55 to 59-ft.	.97	....
14"—2-ft. from butt	6-in.	60 to 64-ft.	1.04	....
14"—2-ft. from butt	6-in.	65 to 69-ft.	1.10	....
14"—2-ft. from butt	6-in.	70 to 74-ft.	1.22	1.28
14"—2-ft. from butt	6-in.	75 to 79-ft.	1.28	1.28
14"—2-ft. from butt	5-in.	80 to 84-ft.	1.40	1.32
14"—2-ft. from butt	5-in.	85 to 89-ft.	1.52	1.40

* Pine piling over 90 feet available only in limited quantities. § ASTM Class B
* a, trucked in from N. J.

RAILWAY TIES

Prices f.o.b. per tie box carload lots:

		8" x 8" x 8' Untr.	8" x 8" x 8' Tr.	7" x 8" x 8'8" Untr.	7" x 8" x 8'8" Tr.
Birmingham*	Hardwood, Grade 3	$1.70	$2.55	Gr. 5 $2.25	$3.33
	Grade 2	1.50	2.35	" 4 2.10	3.18
	Grade 1	1.15	2.00	" 3a 1.70	2.78
Chicago	Red Oak	2.85–3.00	4.00a–4.10	3.90	4.75–5.00
New York	Mixed Hardwood	3.25	4.75	4.00	6.00
	Mixed Oak	3.25	4.75	4.00	6.00
Philadelphia	Mixed Oak	3.70i	3.87	....	4.57
St. Louis	Mixed Oak	2.65	3.75a	3.10h	4.20ah
San Francisco	Douglas Fir	2.10ef	3.42ef	2.44ef	3.72ca

Tr.—Treated; Untr.—Untreated. aCreosoted. c Empty coil. e Green f.o.b. cars. g 7' x 9 x 8'8" * Add 75¢/tie freight charge to Birmingham. *h 7" x 9" x 9½" *i Mixed Hardwood

CHEMICALS

Water, sewage treatment, road work, f.o.b. carlots, New York

Bleaching powder in drums f.o.b. works, per 100 lb.	$5.02
Chlorine cylinders, liquid, per lb. f.o.b. works freight allowed, N.Y. State	.11
Calcium chloride, 77–80%, flaked, 100-lb. paper bag, f.o.b. works, ton	32.00
Silicate of soda, 52 deg., in drums, f.o.b. works, per 100 lb.	2.65
Soda ash, 58%, in paper bags, per 100 lb. dense	1.90
Sulphate of aluminum, commercial, in 100-lb. bags f.o.b. works	2.05
Sulphate of copper, in bags, 99% per 100 lb. f.o.b. works, reg., 25.2% copper content	13.00

See following ENR issues for OTHER PRICES:

- Wage Rates, Building Board, Lath, Insulation: Last, Mar. 31; Next, Apr. 28.
- Cement Aggregate, Ready-mixed Concrete, Asphalt: Last, Apr. 7; Next, May 5.
- Iron & Steel Products. Pipe: Last, Apr. 14; Next, May 12.
- Clay Products, Lime, Plaster, Paint, Roofing: Last, Mar. 31; Next, Apr. 28.

BIGGEST DRILLING NEWS IN AGES...

V-R

New V-R percussion bits

WITH ROPE THREAD

Rounded rope thread curves provide a positive holding power under load conditions and yet, permit fast *hand uncoupling* when load is relieved. Faster bit changing . . . more footage per shift.

Absence of sharp angles and accurate thread machining distributes the load more evenly over the total thread area and eliminates stress points that cause premature failure.

The addition of Rope Thread Percussion Bits to the V-R line means simply: V-R offers the widest range of size and thread combinations that can be offered by any manufacturer. Every bit quality engineered (see story at right). Contact your nearest V-R representative or write for more complete information.

NEW...

CARBIDES . . . 30 years of carbide research and on-the-job testing resulting in *highest* impact and abrasion resistance carbide tips available.

BODIES . . . greatest fatigue resistance alloy there is, created especially for V-R percussion bits. Machined to closer tolerances than generally used.

ENGINEERING . . . every bit designed especially for the range of jobs recommended for fastest penetration and longest life.

MANUFACTURING . . . from raw ore to finished product, every step done by one company to assure unequaled quality at the lowest cost.

CREATING THE METALS THAT SHAPE THE FUTURE

V-R VASCOLOY-RAMET

M-777

808 MARKET STREET • WAUKEGAN, ILLINOIS

Construction Reports

Bids Asked—Low Bidders—Contracts Awarded—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager J. A. MAHONEY, M. WETZEL, M. E. SCIORRA, MARIE MORAVSIK, ELAINE CHOMYAK, ELIZABETH WERRA, ELEANOR QUERET, Reports, J. H. WEBBER, E. R. HUBER, Statistics.

NEW ENGLAND

BUILDINGS—BA

Mass., Cambridge—PARKING STRUCTURE—BA 4/26—Massachusetts Institute of Technology, 77 Massachusetts Ave. (selected list bidders), parking structure, Main and Vassar Sts. $800,000. Parking Assoc., 73 Tremont St., Boston, archts. CD 11/6.

▲† **Mass., Ayer**—HOUSING—BA 5/24—U. S. Eng., 424 Trapelo Rd., Waltham, 1,200 units Capehart Housing, Fort Devens, ENG-19-016-60-39B. $18,000,000-$19,000,000. Plans deposit $10. Carl Kotch & Assoc., 55 Brattle St., Cambridge, archts. CD 4/4.

BUILDINGS—SLC

▲ **Conn., Danbury**—HOTEL—A. O. Samuels, 706 Bostwick Ave., Bridgeport, soon lets contract 4 story with 2 story wing, New Englander Hotel, 198 Main St. $1,000,000. Kane & Fairchild, 734 Asylum Ave., Hartford, archts. Jacob Koton Assocs., 919 Albany Ave., Hartford, engrs. CD 3/4.

R. I., Providence—AUDITORIUM—Brown University, 418 University Hall, Brown University, Campus, soon lets contract skating rink and auditorium Aldrich, Dexter Field, Home St. and Lloyd Ave. $800,000. Perry, Shaw, Hepburn & Dean, 31 St. James Ave., Boston, Mass., archts. CD 3/18.

HEAVY CONSTRUCTION—LB & CA

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston.

J. F. White Contg. Co., P.O. Box 358, Westwood, Mass., CA $2,931,760, est. $3,341,154, hy. and bridge constr., relocation Rte. 3, F-355 (B) Hanover, Norwell, Rockland and Hingham. Bids Jan. 19. CD 1/21, under LB.

BUILDINGS—LB & CA

▲ **Davison Constr. Co., Inc.,** 1306A Elm St., Manchester, N. H., CA Approx. $3,000,000, SHOPPING CENTER, West Side, Daniel Webster Hy., NASHUA, N. H. Indian Head Shopping Center, Inc., 62 Main St., Allenstown, N. H.

J. G. Roy & Sons Co., 21 Silver St., Springfield, Mass., CA $613,257, ELEMENTARY SCHOOL, Greenway-Cherokee Drive Area, SPRINGFIELD, MASS. City, School Bldg. Comn., City Hall, Springfield, Mass. Bids Mar. 25, awarded Apr. 4. CD 3/30, under LB.

▲ **Litchfield County Homes, Inc.,** 157 Migeon Ave., Torrington, Conn., Owner Builds, $1,310,000, 131 HOUSES, "Fieldcrest Estates," Third Section, Harvard Lane, GROTON, CONN.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

▲† **Md., Patuxent River**—RUNWAY REPAIRS—BA 5/18—Area P. Wks. Office, U. S. Naval Weapons Plant, Wash., D. C., repairs to Runway 13-31, U. S. Naval Air Station, NBy 21545. Over $1,000,000. CD 8/26/58.

BUILDINGS—BA

▲ **N. Y., New York**—HOUSING—BA 5/10—New York City Housing Auth., Purchase Div., Rm. 1002, 299 Broadway, Zone 7, Proj. No. NYS-96, fdns. and general contract, heating and ventilating, electrical work, plumbing work Mill Brook Houses, southeast portion of area bounded by E. 137th St., Cypress Ave., E. 135th St. and St. Ann's Ave., Bronx Boro, plans deposit $75; furnishing, installing elevators for Mill Brook Houses Extension Proj. No. NYS 96, plans deposit $25. CD 11/16.

† **Md., Indian Head**—FAMILY HOUSING—BA 5/11—Area P. Wks. Office, Chesapeake, U. S. Naval Weapons Plant, Wash., D. C., conversion of Wherry Housing to family housing, Naval Propellant Plant, NBy-24993. $500,000-$1,000,000.

▲ **N. Y., Rochester**—PUBLIC SAFETY—BA 5/27—Rochester-Monroe Civic Center Comn., Rm. 36, City Hall, general contract, heating and ventilating, plumbing work, electrical work, elevator and escalator work, city public safety bldg. for Rochester-Monroe County Civic Center. Plans deposit $100. Bohacket & Flynn, 311 Alexander, Rochester, N. Y., archts. CD 3/14.

BUILDINGS—SLC

▲ **N. Y., New York**—GARAGE, etc.—Gulf Oil Co., 17 Battery Pl., Zone 4, soon lets contract 3 story parking garage, marina and seaplane landing facilities, East River and 23rd St. $1,000,000. Henry C. Brockman, c/o owner, archt. Praeger-Kavanagh, 120 E. 38th St., Zone 16, engrs. CD 5/16/57.

HEAVY CONSTRUCTION—LB & CA

▲ **Peter W. Kero, Inc.,** 216 Washington Ave., Carlstadt, N. J., CA $2,211,628, est. $2,700,000, (16 bidders), Stage 1, sewerage sys., PARAMUS, N. J. Borough, Municipal Bldg., Paramus, N. J. Bids Mar. 16. CD 3/21, under LB.

McCarthy Constr. Co., 6 and Harriet St., Cincinnati, O., CA $685,199, Southeast Relief Water Main, First Section N St. between First St. N.W. and 3 St. N.E. between M and N Sts., WASH., D. C. D. C. Govt., Dpt. Sanitary Engineering, 499 Pa. Ave. N.W., Wash., D. C. Bids Mar. 10, awarded Apr. 5. CD 3/15, under LB.

BUILDINGS—LB & CA

▲ **Depot Constr. Corp.,** 42-15 Crescent St., Long Island City, N. Y., CA $5,475,500, general contract POLICE ACADEMY and replacement for 13th and 15th PRECINCTS located at E. 20th and E. 21st Sts. between 2nd and 3rd Aves., Manhattan Boro, NEW YORK, N. Y. Dpt. P. Wks., Rm. 2200, Municipal Bldg., New York 7, N. Y. Bids Feb. 17. Grand total $7,052,490. CD 2/19, under LB;

Meyerbank Elec. Co., 126 W. 32nd St., New York 1, N. Y., CA $748,700, electric work for Police Academy and replacement 13th and 15th Precincts (New York, N. Y.);

Heating Maintenance Corp., 220 E. 138th St., New York 51, N. Y., CA $828,290, heating and ventilating Police Academy and replacement 13th and 15th Precincts (New York, N. Y.).

▲ **Dupdi, Inc.,** 209 E. 56th St., New York 22, N. Y., Separate Contracts, $553,000, 9 story APARTMENT, 220 E. 58th St., $1,400,000, 12 story APARTMENT, 225 E. 57th St., NEW YORK, N. Y. Pomerance & Breines, 630 Third Ave., New York 17, N. Y., archts. CD 10/19.

▲ **Manuel E. Kulukundis,** 80 Broad St., New York 4, N. Y., Separate Contracts, $4,300,000, 32 story OFFICE, southeast corner Madison Ave. and 56th St. at 555-63 Madison Ave. and 50-56 E. 56th St., NEW YORK, N. Y. John M. Kokkins, 420 Lexington Ave., New York 17, N. Y., archt. CD 11/19/58.

▲ **Planet Constr. Corp.,** 11 W. 42nd St., New York 36, N. Y., LB $2,390,000, (4 bidders), general contract JUNIOR HIGH SCHOOL 49, Hill and Warren Sts., Clinton, Richmond Boro, STAPLETON, N. Y. Supt. Design, Constr. and Physical Plant, Bureau Constr., 4th Fl., 42-15 Crescent St., Long Island City 1, N. Y. Bids Apr. 7. CD 3/8.

▲ **Michael Petruska,** Gregory Manor, 621 Passaic Ave., Clifton, N. J., Owner Builds, $1,500,000, 39 HOUSES, Chittenden Rd., CLIFTON, N. J.

C. H. Banks, 220 Green Grove Rd., Neptune, N. J., Owner Builds, $550,000, 31 HOUSES, Remsen Mill Rd., NEPTUNE, N. J. Wm. Chirtotis, 80 Morris Ave., Springfield, N. J., archt.

Continental Homes, c/o C. J. Sakany, 22 Jane St., Closter, N. J., Owner Builds, $500,000, 21 HOUSES, Bradley Ave., NORTHVALE, N. J.

Gumina Constr. Co., Larch Ave., New Brunswick, N. J., CA Est. $500,000, CONVENT and RECTORY, Pennington Rd., TRENTON, N. J. Diocese of Trenton and Parish of Church of Incarnation, 1565 Pennington Rd., Trenton, N. J. D. W. Fanning, 49 Ward St., Paterson, N. J., archt.

Daniel J. Tabas, 915 N. Delaware Ave., Phila., Pa., Separate Contracts, Over $500,000, 1 story, 100,000 sq. ft., masonry, steel MFG. PLANT, DOWNINGTOWN, PA.

▲ **Rupert Constr. Co.,** 3400 Lancaster Ave., Wilmington, Del., CA $1,002,103, Ninth Ward ELEMENTARY SCHOOL, 18th and West Sts., WILMINGTON, DEL. Bd. Educ., 511 W. 8 St., Wilmington, Del. Bids Mar. 31. CD 4/5, under LB.

▲ **Joseph Nebel Co.,** 3408 Wisconsin Ave. N.W., Wash., D. C., CA $2,500,000, parking and OFFICE bldg., Stage 4, WASH., D. C. National Education Assocs., 1201 16 St. N.W., Wash., D. C. Bids Mar. 10. CD 3/14, under LB.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $53,000; other public works $88,000; Industrial buildings $110,000; other buildings $400,000. Also Foreign projects of $1,000,000 and more in size of Interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England
Middle Atlantic
South
Middle West
West of Mississippi
Far West

PROPOSED WORK

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Public Buildings
Mass Housing
Commercial Buildings
Industrial Buildings
Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.
SOON LETS CONTRACT: SLC

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily Issue in which last previous report was published.

OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
ENR Engineering News-Record
CD Construction Daily

For additional reports see Construction Daily.

SOUTH

HEAVY CONSTRUCTION—BA

Fla., Dunedin—BA 4/28—City, City Hall, sanitary sewer imprvs. $500,000. Plans deposit $75. Gannett, Fleming, Corddry & Carpenter, 523 N. Halifax Ave., Daytona Beach, engrs.

▲† **Virginia**—BA 5/2—Southside Soil Conservation Service, P. O. Box 641, Chase City, floodwater retarding structure Site 35A, earthfilled embankment, pipe outlet structure and appurtenances, 61,000 cu. yd. earthfill, 280 cu. yd. filters, 62 cu. yd. Class B concrete, Roanoke Creek Watershed, Charlotte Co., for Soil Conservation Service. CD 10/22.

† **La., Shreveport**—STRATEGIC MISSILE FACILITIES, etc.—BA 5/11—U. S. Eng., Gay Bldg., Little Rock, Ark., strategic missile facilities, missile run-up shop, engine test cell, ammonia pumphouse, Barksdale Air Force Base, ENG-03-050-60-41. $700,000. Plans deposit $10. CD 4/1.

▲ **Miss., Jackson**—BA 5/12—Pearl River Water Supply Dist., P.O. Box 2045, Jackson, constr. dam, spillways and appurtenances for Pearl River Valley Reservoir near here. Plans deposit $40. Lester Engineering Co., 5141½ East Amite St., Jackson, Miss., and Harza Engineering Co., 400 West Madison St., Chicago 6, Ill., engrs. CD 12/31/58.

BUILDINGS—BA

▲† **N. C., Fort Bragg**—HOUSING—BA 5/3—U. S. Eng., 308 Customhouse, Wilmington, 367 unit Capehart Housing, Fort Bragg No. 3, ENG-31-075-60-29B. CD 6/26.

Fla., Miami—APARTMENTS—Bids Asked—David Sakiad, 115 S.W. First St., two 87 unit, 3 story, 100 x 304 ft. 1 story, 34 x 45 ft. and 3 story, 34 x 160 ft. apartments, $750,000. Lester Avery, 1521 S.W. First St., Miami, archt.

BUILDINGS—SLC

Ga., Atlanta—BANK—Home Savings & Loan Assoc., 33 Forsyth St. N.W., soon lets contract 4 story bank. $500,000. Cunningham & Forehand, 572 Morosgo Dr. N.E., archt.

HEAVY CONSTRUCTION—LB & CA

† **Bennie Snyder,** P.O. Box 816, White Sulphur Springs, W. Va., CA $695,540, local protection project, Princeton, IFB CIVENG-46-022-6057, WEST VIRGINIA. U. S. Eng., 502 8th St., Huntington 18, W. Va. Bids Mar. 1. CD 3/8, under LB.

▲† **ALABAMA**—Bureau P. Rds., First National Bank Bldg., Florence, Bids opened 4/7,

Traylor Brothers, Inc., Station B, P. O. Box 66, Evansville, Ind., LB $1,267,010, (21 bidders) Proj. 2-B-1, Part A, 37 piers and 2 abutments for brige over Tennessee River, Natchez Trace Parkway. CD 3/11.

▲ **E. M. Fleming Constr. Co.,** 4121 NW 25 St., Miami, Fla., CA $1,099,979, construct Pier F (1) addn. to 20th St. Terminal Bldg., Miami International Airport, MIAMI, FLA., Dade Co. Port Auth., 10 Floor Courthouse, Miami, Fla. Bids Dec. 15, awarded Apr. 1. CD 12/22, under LB.

Mather Constr. Co., Box 388, Jeffersonville, Ind., LB $627,962 Base Bid, (5 bidders), water treatment plant on lower River Rd., PLEASURE RIDGE PARK, KY. Louisville Extension Water Dist., 8360 Dixie Hy., Louisville, Ky. Bids Apr. 5. CD 3/9.

Bush Building Co., 805 8th Ave., N., Nashville, Tenn. CA $628,790, Div. 1, sewage treatment plant, ATHENS, TENN. City, City Hall, Athens, Tenn. CD 3/24, under LB.

BUILDINGS—LB & CA

▲ **M. T. Broyhill & Sons Corp.,** 4610 Lee Highway, Arlington, Va., Owner Builds, $2,000,000, 64 HOMES, LANGLEY, VA. CD 3/9.

Wagoner Constr. Co., Salisbury, N. C., CA $650,000, advanced dry battery systems mfg. PLANT, LEXINGTON, N. C. Mallory Battery Co., 1300 Athens Ave., Cleveland 7, O. Bids Mar. 18. CD 3/10.

Roberson Constr. Co., P.O. Box 5056, Columbia, S. C., LB $605,858, Fairfield Road JUNIOR HIGH SCHOOL, COLUMBIA, S. C. City School Bd., 1311 Marion St., Columbia, S. C. Bids Apr. 5. CD 3/14.

▲ A. B. Newton Co., P. O. Box 191, Vidalia, Ga., CA $1,165,635, LOW RENT HOUSING, Projects Ky-26-1, Ky-26-2, GLASGOW, KY. Glasgow Municipal Housing Comn., Glasgow, Ky. Bids Mar. 22. CD 3/28, under LB.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

▲ Ill., Quincy—BA 5/2—City, City Hall, Section 1, Whipple St. Sewer Dist., 4,500 ft. 8 x 8 ft. trunk relief sewers, 1,150 ft. 8 x 6.5 ft. rein.-con. box, $800,000; Section 2, Whipple St. Sewer Dist., relief sewers, incl. 12,850 ft. 15- to 72-in. open cut, 2,300 ft. 66 in. in tunnel, $613,000. CD 3/24.

BUILDINGS—BA

▲ Wis., Sheboygan — HIGH SCHOOL — BA 5/7 — Bd. Educ., 2 story high school. $3,300,000. Plans deposit $75. Bradley & Bradley, 824 N. Main St., Rockford, Ill., archts. CD 2/19.

▲ Wis., Racine—JUNIOR HIGH SCHOOL—BA 5/9—Bd. Educ., 2 story, 360x360 ft., Frank R. Starbuck Junior High School, $2,200,000. Plans deposit $50. Warren Holmes Co., 820 N. Washington Ave., Lansing 6, Mich., archt. CD 3/25/59.

▲ Wis., Wauwatosa — CHILDREN'S COURT CENTER — BA 5/18—Milwaukee Co., Milwaukee, Children's Court Center, $2,580,000. Plans deposit $100. Grellinger & Rose Assocs., 757 N. Broadway, Milwaukee, Zone 2, archts. CD 9/10.

▲ Wis., Madison—CHEMISTRY—BA 5/19—University of Wisconsin, 6 story chemistry. $2,611,500. Plans deposit $50. Grellinger & Rose Assocs., Inc., 757 N. Broadway, Milwaukee, Zone 2, archts. CD 11/6.

BUILDINGS—SLC

▲ Ill., Chicago—APARTMENTS—Sam E. Schulman, 61 E. 8th St., Zone 5, soon lets contract 13 story Tower Court Apartments, swimming pool, garage, air conditioning, Michigan and Chicago Aves. $2,500,000. Hausner & Macsai, 104 S. Michigan Ave., Zone 3, archts.

HEAVY CONSTRUCTION—LB & CA

▲ OHIO—State Hy. Dpt., State Depts. Bldg., Columbus, Zone 15,

O.—E. K. Bridge Constr. Co. and Miller Brothers, Inc., 2416 Byrne Rd., Toledo, O., CA $2,231,289, Type T-71 and structures 3.41 mi. State Rte. 1, Section 10.38, I-90-1(25)29, Village of Kirtland Hills and in Mentor and Concord Twps., Lake Co.;

O.—Schoen Paving, Inc., 310 S. Westwood Ave., Toledo, O., CA $602,955, Type T-50 and structure 0.902 mi. US Rte. 223, Section 6.91, U-654, U-654(2), Lucas Co.;

O.—The W. J. Seidensticker Co., 3585 E. Fulton St., Columbus, O., CA $182,844, Type T-35 on B-219 and structure 0.867 mi. State Rte. 4, Section 7.49, ER-56(1) Jefferson Twp., Montgomery Co.;

O.—Sutton & Stewart, Inc., 841 National Rd., Bridgeport, O., CA $294,817, Type T-35 on B-19 and structures 1.183 mi. State Rte. 564, Sections (3.52) (8.61) (10.40-10.61) Enoch and Jefferson Twps., Noble Co.;

O.—Heil Contg. Co., 2601 Adgate Rd., Lima, O., CA $109,963, Type T 30, B 35, T 35 12.06 mi., Parts No. 1 and 2, Allen and Hardin Counties;

O.—Edgar Spring, Inc., Rte. 1, New Philadelphia, O., CA $94,802, Type T-30, B-35, T-25 7.5 mi. Part 1, Harrison Co. Grand total $3,516,670. Bids Mar. 29. CD 3/17.

▲ Peirce Constr. Co., 3005 Bellvue Rd., Toledo, O., CA $1,105,942, extension Runway 5-R-23L, Cleveland Hopkins Airport, CLEVELAND, O. City Dpt. Port Control, City Hall, Cleveland 14, O. Dalton-Dalton & Assocs., The Arcade, Cleveland 14, O., engr. Bids Mar. 31, awarded Apr. 6. CD 4/6, under LB.

▲ ILLINOIS—Dpt. P. Wks. & Bldgs., Div. Hys., Centennial Bldgs., Springfield,

Hoeffken Bros., Inc., 222 W. B St., Belleville, Ill., CA $1,223,231, two grade separations, FAI 270 over R.R. and Wagon Rd., north of Mitchell, Madison Co. Bids Mar. 18. CD 3/22, under LB.

▲ ILLINOIS—Dpt. P. Wks. & Bldg., Div. Hys., Centennial Bldg., Springfield,

Ill.—Orr Constr. Co., 27 E. 19th St., Chicago Heights, Ill., CA $1,724,778, paving, interchanges, US 30 north of Sugar Grove, Kane Co.; CA $736,140, paving FAI 57 west of Marion and interchange with Ill. 13, Williamson Co.;

Ill.—Standard Paving Co., 308 W. Washington St., Chicago, Ill., CA $2,112,297, 4 lane paving 6.18 mi. FAI 70 west of Montrose easterly, Cumberland and Effingham Counties;

Ill.—Triangle Constr. Co., 480 N. Evergreen St., Kankakee, Ill., CA $598,827, paving, base course, wid'n. US 51 from DuQuoin northerly, Perry Co. Grand total $5,172,042. Bids Mar. 18, awarded Apr. 4. CD 3/22.

▲ J. P. Constr. Co., 1750 State St., Chicago Heights, Ill., CA $1,284,131, est. $600,000, No. 062-0205-CF, wid'n. resurf. 3.58 mi. Chicago Rd., Thornton, CHICAGO, ILL. Bd. Comrs. Cook Co., County Bldg., Chicago 2, Ill. Grand total $3,102,837. Bids Mar. 8, awarded Apr. 5. CD 3/14, under LB.

(Continued on page 100)

HARDWARE For HEAVY CONSTRUCTION

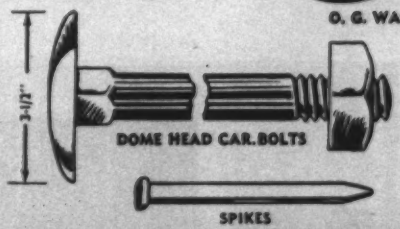
Hot Dip Galvanized or Black

TIE RODS

LAG BOLTS

SQUARE HEAD BOLTS

O. G. WASHERS



3-1/2"

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Owners: At left, Mr. A. Page Sloss. Center, Mr. Everett Shepherd. At right, builder, Mr. H. A. Brice, Sr.
Architect: Henry Sprott Long, Birmingham, Alabama.
Steel Erector: Brady Faucett Erection Co., Birmingham, Alabama.

of Five Points West Shopping City, Birmingham, Alabama.

of space. Everett Shepherd and Page Sloss conceived the idea and developed it into the biggest shopping center in Alabama. Builder, H. A. Brice, Sr., gave it a backbone of USS Structural Steel —417 tons of it. "A builder can make longer spans, and do the job quicker with structural steel," says Mr. Brice, "and most important, it's economical and we can get it right here in Birmingham from United States Steel."

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Tennessee Coal & Iron—Fairfield, Alabama
United States Steel Supply—Steel Service Centers
United States Steel Export Company

United States Steel

(Continued from page 97)

Rossi Trucking Co., 1825 S. Kostner Ave., Chicago, Ill., CA $782,786, No. 066-1717A, grading South Rte. Expressway, 79th to 87th Sts. (Chicago, Ill.);
Millburn Bros., Inc., Central Rd., Mount Prospect, Ill., CA $535,082, est. $842,000, No. 267A-0101.6 CF paving, c. conc. paving 5.7 mi. Northwest Expressway, 7,387 ft. storm sewers (Chicago, Ill.);
Palumbo Excavating Co., 2758 Harrison St., Chicago, Ill., CA $500,838, est. $750,000, No. 066-1415A-CF, earth grading South Rte. Expressway, 97th St. to Michigan Ave. (Chicago, Ill.).

▲ **John Doherty Co.**, 9824 Genoa Ave., Chicago, Ill., CA $1,292,944, est. $1,100,000, No. 066-1213-4B, 176-1515-1-CF, storm sewers, semi-ellip, CHICAGO, ILL. Bd. Comrs. Cook Co., County Bldg., Chicago 2, Ill. Bids Mar. 8, awarded Apr. 5. CD 3/11, under LB.

▲ **MICHIGAN**—State Hy. Dpt., 732 Mason Bldg., Lansing, Bids opened 4/6,

Mich.—**S. J. Groves & Sons**, 3700 Carpenter Rd., Ann Arbor, Mich., LB $3,158,270, 5.4 mi. expressway and seven structures from M-50 in Dundee north to Ann Arbor R.R. tracks, Monroe Co.; LB $1,265,762, 3.1 mi. northbound lane US 23 expressway and 3 structures from Ann Arbor R.R. tracks-north to Milan, Monroe Co., CD 3/18; LB $2,050,510, 7.8 mi. US 16 expressway and eight structures from end of Marne-Coopersville section northwesterly to State Rd., Ottawa Co., CD 3/18;

Mich.—**Louis Garavaglia**, 24240 Mound Rd., Warren, Mich., LB $3,895,428, 5.7 mi. US 12 expressway and seven structures from New Buffalo north to Lakeside, incl. some work on US 112 and M-60, Berrien Co., CD 3/18;

Mich.—**Cooke Contg. Co.**, 1116 Penobscot Bldg., Detroit 26, Mich., LB $1,072,425, 1.6 mi. US 23 expressway (Saginaw eastbelt) from James Rd. north to M-81, incl. 3 structures, Saginaw Co., CD 3/18;

Mich.—**Holloway Constr. Co.**, 29350 Jay Rd., Livonia, Mich., LB $1,992,092, 5.4 mi. US 12 expressway and 3 structures to fill in gap between Fletcher Rd. and New York Central R.R. tracks southwest of Chelsea, Washtenaw Co., CD 3/18;

Mich.—**Hertel Deyo Co.**, 5205 S. Division Ave. S., Grand Rapids, Mich., and **C. E. Utterbeck**, Mt. Pleasant, Mich., LB $2,025,353, 6.7 mi. US 27 expressway and 2 structures from Blanchard Rd. north to Deerfield Rd. south of Mt. Pleasant, incl. connection from expressway to existing US 27 south of Mt. Pleasant, Isabella Co. CD 3/18.

▲ **MICHIGAN**—State Hy. Dpt., 732 Mason Bldg., Lansing, bids opened 4/6,

Mich.—**Maclean Constr. Co.**, 731 Sheridan Rd., Lansing, Mich., LB $2,063,493, interchange to carry Nunica Rd. over expressway 112th Ave., interchange to carry eastbound expressway over M 104, interchange to carry westbound expressway over M-14, grade sep. to carry existing US 16 over expressway 1 mi. northwest of Nunica, Ottawa Co. CD 3/18, under Streets and Roads;

Mich.—**Owen-Ames Kimball Co.**, 38 Pearl St., N. W., Grand Rapids, LB $233,243, grade separation to carry expressway over Grand Trunk Western RR tracks ½ mi. west of Nunica, Ottawa Co. CD 3/18.

BUILDINGS—LB & CA

▲ **Avon Acres Development Co.**, 5531 State Rd., Parma 34, O., Own Forces, $3,000,000, 150 HOMES off Walker Rd. between Moore and Center Rds., AVON LAKE, O. Marvin Braun, 1311 Commonwealth Ave., Cleveland 24, O., archts.

▲ **Clifford C. Loss, Inc.**, 4 Poinsetta Dr., Toledo, O. Owner Builds, $2,000,000, 150 HOMES, Lincoln Green subdivision, off McCord Rd., between South St. and Hill Ave.; $550,000, 39 HOMES, Roger Heights Subdivision, vicinity of Dorr and Holland-Sylvania Rds., TOLEDO, O.

Clifford C. Loss, Inc., 4 Poinsetta Ave., Toledo, O. Owner Builds, $800,000, 53 HOMES, Valley Forge subdivision, WATERVILLE, O.

▲ **A. & R. Building Corp.**, 4919 Katherine Dr., Indianapolis, Ind., Owner Builds, $1,000,000, 58 HOMES, subdivision at 66th and Grandview Sts., Grandview Meadows, INDIANAPOLIS, IND.

Abbot Constr. Co., 5789 N. Lincoln Ave., Chicago, Ill., CA $829,900, general contract John C. Calhoun SCHOOL, 2850 W. Jackson Blvd., CHICAGO, ILL. Bd. Educ., 228 N. LaSalle St., Chicago, Ill. Bids Mar. 7, awarded Mar. 14. CD 3/15, under LB.

▲ **James McHugh Constr. Co.**, 6449 S. Park Ave., Chicago, Ill., CA $1,109,000, Oak Forest HOSPITAL alterations, CHICAGO, ILL. Bd. Comrs. Cook Co., County Bldg., Chicago 2, Ill. Bids Mar. 9, awarded Apr. 5. CD 3/25, under LB.

Permanent Constr. Co., 2200 N. 3 St., Milwaukee, Wis., CA $986,900, general contract 120-unit CONVENT HILL HOUSING, MILWAUKEE, WIS. Milwaukee Housing Auth., 333 W. North Ave., Milwaukee, Wis. Bids Mar. 29. CD 4/4, under LB.

▲ **Hutter Constr. Co.**, 134 Western Ave., Fond du Lac, Wis., CA $1,470,727, general contract 1 story, 320 x 640 ft. John Muir JUNIOR HIGH SCHOOL, WAUSAU, WIS. Bd. Educ., Wausau, Wis., Bids Mar. 25. CD 4/6, under LB.

MISSISSIPPI TO ROCKIES

HEAVY CONSTRUCTION—BA

▲† **S. D., Rapid City**—RUNWAY—BA 5/3—U. S. Eng., 1709 Jackson St., Omaha 2, Neb., runway, Ellsworth Air Force Base, ENG-25-066-60-127. $1,000,000. CD 9/28.

BUILDINGS—BA

▲ **Colo., Denver**—SHOPPING CENTER—BA 4/28—Owner, c/o Walter Koelbel, 1845 S. Sherman, Denver, 80,000 sq. ft. shopping center, E. Hampden Ave. and S. Glencoe. $1,500,000. Extended date. Fisher & Davis, 821 17 St., archts. CD 4/6.

▲ **Tex., Houston**—HOSPITAL—BA 5/4—Methodist Hospital, Texas Medical Center, 6516 Bertner St., 9 story hospital; 3 story addn. $6,000,000. Milton McGinty & Vance D. Phenix, 2425 Ralph St., archts. Walter P. Moore, 2 Pinedale St. and Raymond L. Jenkins, 2622 Richmond Ave., engrs. CD 4/18/58.

N. M., Clovis—HOSPITAL ADDN.—BA 5/20—City, City Hall, Clovis Memorial Hospital addn. $800,000. Jas. A. Burran, P.O. Box 2781, archt. CD 9/1a

† **Tex., El Paso**—TRAINING FACILITIES, etc.—BA About 5/26—U. S. Eng., Box 1538, Albuquerque, N. M., G. M. Range training and Hawk facilities, McGregor South Range, Fort Bliss, ENG-29-005-60-87, $700,000. CD 9/25/59.

BUILDINGS—SLC

Tex., Abilene—DORMITORY—Abilene Christian College, Abilene, soon lets contract 3 story, bsmnt. dormitory. $750,000. F. C. Olds Co., 325 Hickory St., P.O. Box 2259, Abilene, engr. CD 5/9/56.

HEAVY CONSTRUCTION—LB & CA

SOUTH DAKOTA — State Hy. Dpt., Pierre, Bids opened 4/7,

S. D.—**Art Schimkat Constr. Co.**, 124 Washington St., Pierre, S. D., LB $1,021,187, (13 bidders), grading, etc., 9.14 mi. from 2 mi. West of New Underwood to 4 mi. E. of Wicksville, I-90-2 (8) 77, Pennington Co.; LB $742,950, (11 bidders), grading 9.14 mi. West of New Underwood to 4 mi. E. of Wicksville, Sec. No. 1, I-80-2 (8) 77, Pennington Co.;

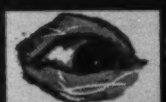
S. D.—**John Dieseth Co.**, Fergus Falls, Minn., LB $357,072, (2 bidders), roads 6.764 mi. I 29-2 (4) 55, Lincoln Co. CD 3/9.

▲† **Western Contg. Corp.**, 400 Benson Bldg., Sioux City, S. D., CA $3,043,278, first stage earth work on Big Bend Dam, Fort Thompson, SOUTH DAKOTA. U. S. Eng., 1907 Jackson St., Omaha 2, Neb. Bids Mar. 31. CD 4/4, under LB.

▲ **KANSAS**—State Hy. Dpt., State Office Bldg., Topeka, Bids opened 4/5,

Kan.—**Koss Constr. Co.**, 510 Iowa Des Moines Bank Bldg., Des Moines, Iowa, LB $726,370, (5 bidders), concrete pavement 2.327 mi. SP 470-89 I 470-5 (19) 355 Pt. I, Shawnee Co.; LB $308,976, (5 bidders), concrete pavement 1.255 mi. SP 470-89 I 470-5 (19) 355 Pt. III, Shawnee Co.; LB $779,550, (5 bidders),

(Continued on page 103)



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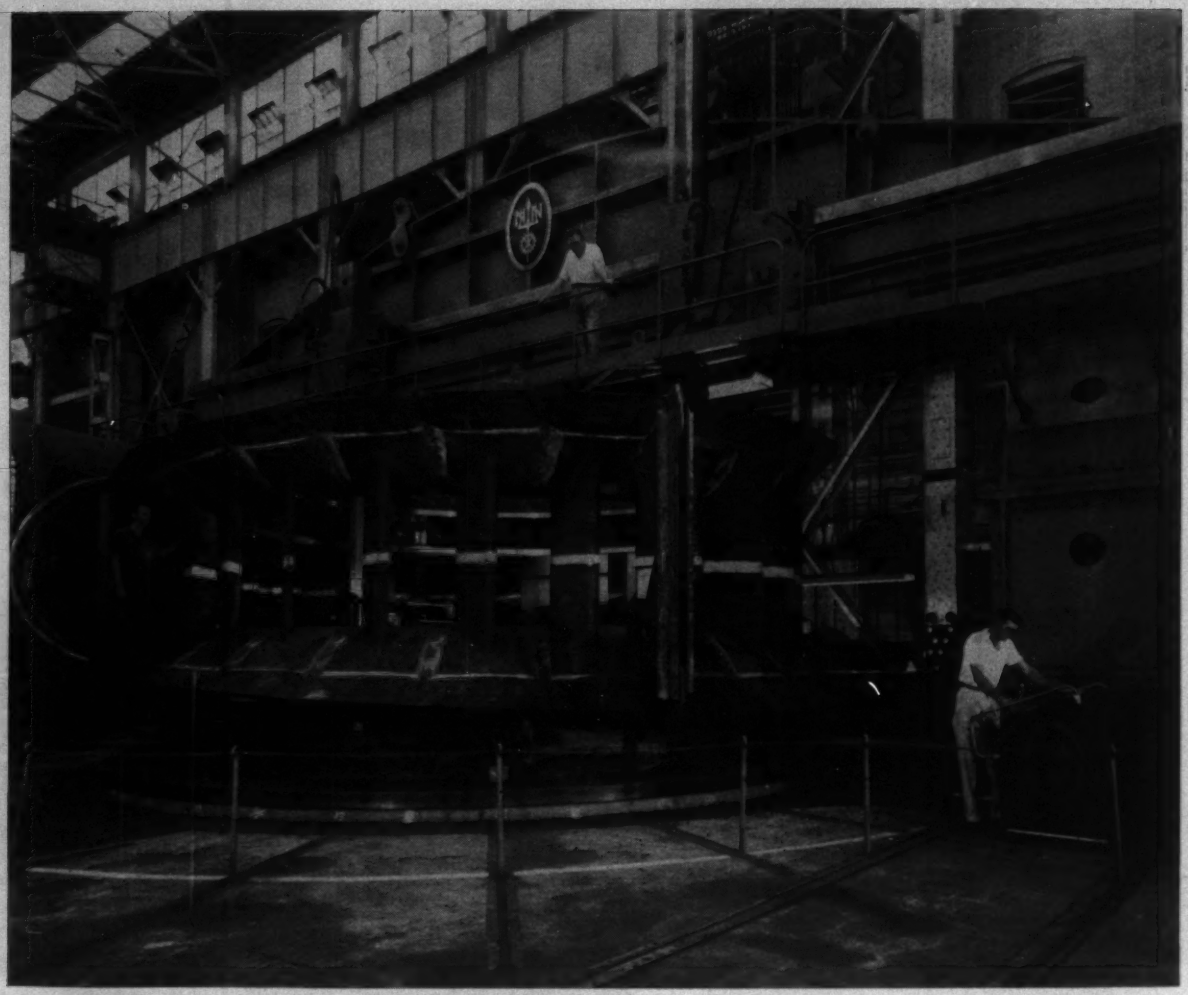

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(Continued from page 100)

concrete pavement 2.496 mi. SP 470-89 I 470-5 (19) 355 Pt. IV, Shawnee Co.;

Kan.—**Bowen Constr. Co.**, 1201 Manchester, Kansas City, Mo., LB $251,410, (5 bidders), b. conc. base course 9.632 mi. SP 150-46 K 1077 (3), Johnson Co. CD 3/18.

Upper Neches River Municipal Water Authority, Jacksonville, Tex., rejected bids Mar. 10, Stage No. 2, concrete work, Blackburn Crossing Dam and Reservoir, at Frankston, 9 mi. N.W. of PALESTINE, TEX. Est. $800,000. CD 3/4.

▲ **Natkin & Co.**, Box 13353, Dallas, Tex., LB $1,746,824, water treatment plant, filter plant, pump station, WICHITA FALLS, TEX. City, City Hall, Wichita Falls, Tex. Joe E. Ward, 1606 A Monroe St., Wichita Falls, Tex., engr. Bids Mar. 31. CD 3/29;
Brodie Constr. Co., P.O. Box 2646, Amarillo, Tex., LB $531,749, water lines (Wichita Falls, Tex.).

† **Allison & Haney, Inc.**, P.O. Box 1796, Albuquerque, N. M., CA $761,649, levee and channel imprvs., Rio Grande Watershed, Los Lumas Bridge to Belen Bridge, Valencia Co., CIVENG-29-005-60-5, NEW MEXICO. U.S. Eng., P.O. Box 1538, Albuquerque, N. M. Bids Mar. 10. CD 3/21, under LB.

▲† **Building Marts, Inc.**, 2212 E Yandell Dr., El Paso, Tex., LB $1,080,523, rehabilitating, remodeling 600 units Wherry Housing, ALAMOGORDO, N. M. Base Procurement, P.O. Box 1538, Albuquerque, N. M. Bids Mar. 15. CD 2/3.

BUILDINGS—LB & CA

▲† **D & L Constr. Co. & Assocs.**, North Hollywood, Calif., LB $12,569,874, (3 bidders), 800 units Capehart HOUSING No. 3, ENG-23-028-60-66, FORT LEONARD WOOD, MO. U.S. Eng., 1800 Federal Office Bldg., Kansas City, Mo. Bids Apr. 7. CD 4/4.

▲ **Meade & Mount Constr.**, Denver Club Bldg., Denver, Colo., LB $1,686,000, APARTMENT DEVELOPMENT, DENVER, COLO. Spears Investment Co., E. 9th and Ivy St., Denver, Colo. Bids Apr. 6. CD 4/4.

FAR WEST

HEAVY CONSTRUCTION—BA

▲ **Calif., San Francisco** — EXHIBIT TANKS, etc. — BA 5/4—City and San Francisco County, Dpt. P. Wks., City Hall, rebuild concrete exhibit tanks, exhibition tanks and garage addn. Steinhart Aquarium, Golden Gate Park, Job 1846. $1,200,000. Plans deposit $250. Aleck L. Wilson, 256 Sutter St., archt. Gould & Degenkolb, 149 California St., engrs. CD 12/12/56.

▲† **Calif., Point Mugu**—ROADS, UTILITIES, etc.—BA 5/10—Dist. P. Wks. Office, 11th Naval Dist., 1220 Pacific Hy., San Diego, Zone 1, roads and utilities, Naval Missile Facility, Point Arguello, Spec. 25954. Over $4,000,000. CD 9/25.

▲† **Wash., Seattle**—TRAFFIC CONTROL CENTER—BA About 6/15—Federal Aviation Agency, 3651 W. Manchester Ave., Los Angeles, Calif., air route traffic control center, IFB 4-60-1060. $1,700,000. Plans deposit $50. CD 2/10.

BUILDINGS—BA

▲ **Calif., Pasadena**—SCHOOL—BA 5/3—Pasadena Bd. Educ., 351 South Hudson Ave., Second Increment Pasadena High School. $2,000,000. CD 4/17/59.

▲ **Calif., Woodland**—PHYSICAL EDUCATION BLDG., etc.—BA 5/3—Woodland Joint Union High School Dist., College and Bartlett Sts., tilt up concrete structure, steel and wood frame physical education bldg. and addn. Woodland High School. $1,000,000. Plans deposit $25. Sparks, Jozens, Nacht, Native Sons Bldg., Sacramento, Calif., archts. CD 12/18/57.

▲† **Calif., Lemoore**—CAPEHART HOUSING—BA 5/11—Dist. P. Wks. Office, 12th Naval Dist., San Bruno, 500 unit Capehart Housing, U.S. Naval Air Station. CD 9/30.

▲ **Hawaii, Honolulu**—OFFICE, etc.—BA 5/11—Bishop National Bank, 161 S. King St., 18 story, rein.-con. office and garage $4,000,000. Extended date. Lemmon & Freeth, 1410 Kapiolani Blvd., Honolulu, Hawaii, archts. CD 3/23.

▲† **Calif., Fort Ord**—HOUSING—BA About 6/2—U. S. Eng., 180 New Montgomery St., San Francisco, 500 units Capehart Housing, Fort Ord (No. 3). $8,000,000. Extended date. CD 3/7.

BUILDINGS—SLC

▲ **Calif., North Hollywood**—OFFICE—Honnold & Rex, archts., 9026 Melrose Ave., Los Angeles, soon lets contract, 9 story, steel frame and concrete office for Los Angeles Federal Savings and Loan, 645 South Hill St., Los Angeles, Calif. $1,000,000.

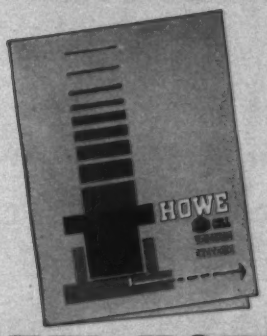
▲ **Ore., Portland**—WAREHOUSE—Western Electric Co., 1235 N.E. 47th Ave., soon lets contract warehouse addn. $1,000,000.

HEAVY CONSTRUCTION—LB & CA

▲ **ARIZONA**—State Hy. Comn., 206 S. 17 St., Phoenix, Bids opened 4/8,

Ariz.—**Tanner Bros. Contg. Co.**, P.O. Box 12217, Proenix, Ariz., LB $1,037,602 (4 bidders), subgrade seal select material aggregate base, bit. stab. base road mixed and emul. asph. ,seal coat Cordes Junction-Flagstaff Highway, Coconino Co.;

Ariz.—**Bentson Contg. Co.**, 2800 S. Central Ave., Phoenix, Ariz., LB $167,937 (7 bidders), grading, select material aggregate base bit. stab. base and emls. asph. seal coat McKellips Rd. and Power Rd., Maricopa Co. CD 3/21.



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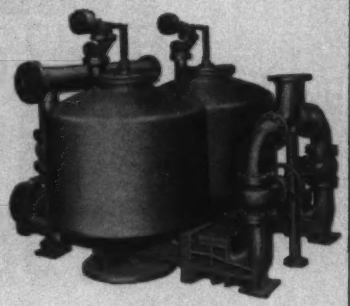

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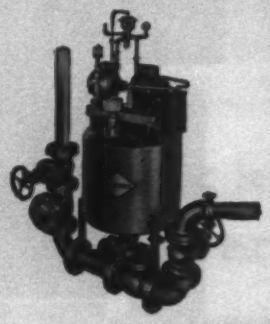

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M. Malaspina Co., 1901 23 Ave. S., Seattle, Wash., LB $705,155 (4 bidders), 102,000 ft., 6- to 10-in. cement-asbestos upland sewers, MERCER ISLAND, WASH. Mercer Island Sewer Dist., 3030 78 Ave. S.E., Mercer Island, Wash. Bids Apr. 5, CD 3/10; Valley Constr. Co., 7708 Rainer Ave., Seattle, Wash., and Morrison-Knudsen Co., Inc., 319 Broadway, Boise, Idaho, LB $194,751 (4 bidders), 17,300 ft., 8 and 10 in. c.i. lakefront sewers (Mercer Island, Wash.); G. R. Leischner Constr. Co., 9201 12 Ave. N.W., Seattle, Wash., LB $99,220, (5 bidders), 6 pump stations and modifications to 7 existing stations (Mercer Island, Wash.).

▲ CALIFORNIA—State Div. Hys., 120 S. Spring St., Los Angeles, Bids opened 4/7,

Gerald E. Brewster, P.O. Box 96, Avenal, Calif., LB $4,825,808 (11 bidders), 1.3 mi. eight lane freeway on San Diego Freeway in Long Beach and Los Angeles between 0.1 mi. east of Long Beach Freeway and Alameda St., incl. interchange at jct. of two freeways, traffic separation and ramp structures, incl. bridge to carry San Diego Freeway over Long Beach Freeway, VII-L.A.-158,D,Ibch,C,LA., Los Angeles Co. CD 2/17.

CALIFORNIA—State Div. Hys., 1120 N St., Sacramento, John Delphia & Fred J. Early, Jr. Co., Inc., P.O. Box 607, Patterson, Calif., CA $729,638, reconstr. and realignment 4.3 mi. State Sign Rte. 120 between 6.9 mi. east of Stanislaus County Line and 0.9 mi. west of Yosemite Junction, Tuolumne Co. Bids Mar. 23, awarded Apr. 5. CD 3/30, under LB.

† Eugene Luhr & Co., P.O. Box 48, Columbia, Ill., CA $656,350, channel imprvs., flood control work, levee constr., Cherokee Canal, Southern Pacific R.R. to high ground, Butte Co., Spec. 2571, ENG-04-167-60-2, CALIFORNIA. U. S. Eng., 1209 8th St., Sacramento, Calif. Bids Mar. 29. CD 4/4, under LB.

▲† E. L. Yeager Co., 1995 Aqua Mansa Rd., Riverside, Calif., CA $1,594,160, constr. San Antonio and Chino Creeks and channel imprvt. between Ramona Ave. and Prado Reservoir, Santa Ana River Basin, San Bernardino Co., CIVENG-04-353-60-20, CALIFORNIA. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Mar. 31. CD 4/7, under LB.

▲ Fred J. Early, 369 Pine St., San Francisco, Calif., LB Est. $1,250,000, Sweetwater Valley Filtration Plant, CHULA VISTA, CALIF. California Water & Telephone Co., 386 Third Ave., Chula Vista, Calif. Bids Mar. 16. CD 3/2.

▲ Noxon Constr. Co., 1513 Lest Temple St., Los Angeles, Calif., LB $2,415,850 (8 bidders), bulk grain terminal Pier A, Berth 211, Long Beach Outer Harbor, LONG BEACH, CALIF. Long Beach Harbor Department, 1333 Embarcadero, P.O. Box 570, Long Beach 1, Calif. Bids Apr. 6. CD 3/14.

BUILDINGS—LB & CA

▲† C. F. Braun & Co., 1000 S. Fremont Ave., Alhambra, Calif., CA Est. $4,000,000 (EOCR) EXPERIMENTAL ORGANIC COOLED REACTOR, ARCO, IDAHO. Atomic Energy Comn., Idaho Operations Office, Idaho Falls, Idaho. CD 12/23.

Technical Constructors, Inc., 12820 Coit Rd., Dallas, Tex., CA $963,088, (SPERT-IV) SPECIAL POWER EXCURSION REACTOR TEST NO. 4 at National Reactor Testing Station, Inv. No. AT(10-1)-1022, ARCO, IDAHO. Atomic Energy Comn., Idaho Operations Office, Idaho Falls, Idaho. Bids Mar. 30. CD 4/5, under LB.

▲ Malouf Constr. Co., 131 W. McDowell Rd., Scottsdale, Ariz., CA $4,000,000, Westown SHOPPING CENTER, Black Canyon Highway at Larkspur Drive, PHOENIX, ARIZ. Malouf Constr. & Development Co., 131 W. McDowell Rd., Scottsdale, Ariz. Glenn A. McCollum, Chandler, Ariz., archt.

L. P. Scherer, 208½ Orange St., P.O. Box 590, Redlands, Calif., CA $681,600, general contract addns. and extensive alterations to existing California Institution for Men, incl. OUT-PATIENT WING, SURGERY WING, NURSING WING, all addns. totaling about 30,375 sq. ft. floor area, W.O. 4161GC-19, CHINO, CALIF. State Div. Architecture, 1100 S. Grand Ave., Los Angeles, Calif. Bids Mar. 30, awarded Apr. 5. CD 4/6, under LB.

▲† Peter Kiewit Sons Co., 345 Kieways Ave., Arcadia, Calif., LB $2,627,711 (10 bidders), barracks and utilities, Camp Del Mar, Marine Corps Base, Spec. 19415-58, CAMP PENDLETON, CALIF. Dist. P. Wks. Office, 11th Naval Dist., San Diego, Calif. Bids Apr. 6. CD 3/30.

▲ Foster-Marsch Corp. & Manderbach Constr. Co., 3911 Pacific Highway, San Diego, Calif., CA $5,997,000, Wesley Palms HOME FOR RETIRED, SAN DIEGO, CALIF. Pacific Homes Development Co., 5250 Santa Monica Blvd., Los Angeles, Calif. Bids Mar. 8. CD 3/14, under LB.

▲ Callan Constr. Co., Inc., 2790 Juniper Sierra Blvd., Colma, Calif., CA Est. $3,000,000, RESIDENTIAL DEVELOPMENT, near SAN MATEO, CALIF. Callan Park Homes, c/o contractor.

CANADA

BUILDINGS—BA

▲ Alta., Calgary—HIGH SCHOOL—BA 4/28—Calgary Public School Bd., 4th Ave. and 6th St. W., 2 story, masonry, steel high school, 75th Ave. and Elbow Dr. Plans deposit $100. Extended date. J. J. Smart, McDougall School, Calgary, archt. CD 2/25.

HEAVY CONSTRUCTION—SLC

▲ Manitoba — COMPRESSOR STATION — Trans-Canada Pipe Lines, Ltd., 150 Eglinton Ave. E., Toronto, Ont., soon lets contract compressor station for natural gas pipe line, Portage LaPrairie, $1,000,000; compressor station for natural gas pipe line, Forrest, $1,000,000. CD 4/8.

(Continued on page 109)

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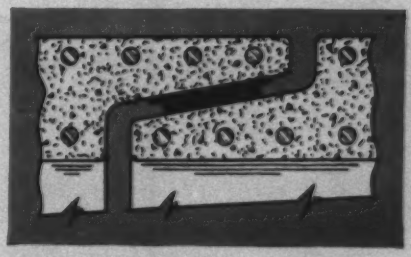
TYLOX

Rubber PIPE GASKETS

*PREVENT JOINT LEAKS, WHIP CORROSION AND SPEED PIPE WORK ON SEWER PROJECT AT OIL CITY, PA.**

Oil Creek, a watercourse in Oil City, Pa., will be cleaner, purer, and an even greater enhancement to the beauty of the city, as a result of current work being done under Oil City's continuing sewer expansion program. Consisting of several miles of new laterals, new concrete pipe interceptors up to 36″ in diameter, and a new sewage treatment plant, the facilities now being added make it possible to treat all sewage waste disposal before effluent is discharged into the river.

Engineers and officials specified Hamilton Kent TYLOX Rubber Gaskets for coupling the pipe lines, knowing they could count on TYLOX for three important advantages: leak-proof joints to keep infiltration loads negligible at the new plant; acid-resistance to prevent deterioration of the joints and necessity of future repairs; and easier, faster pipe coupling, to help keep construction costs down.



TYLOX Gaskets form a permanently tight compression seal. Water can't leak in or out . . . roots and sediment can't penetrate . . . acids can't destroy. Pipe can be coupled in wet trenches . . . backfill may be applied immediately.

5099

WRITE FOR ENGINEERING DETAILS ON TYLOX—
Specify TYLOX FOR YOUR PIPE PROJECTS

* **PROJECT:** Sanitary sewer expansion, Oil City, Pa.

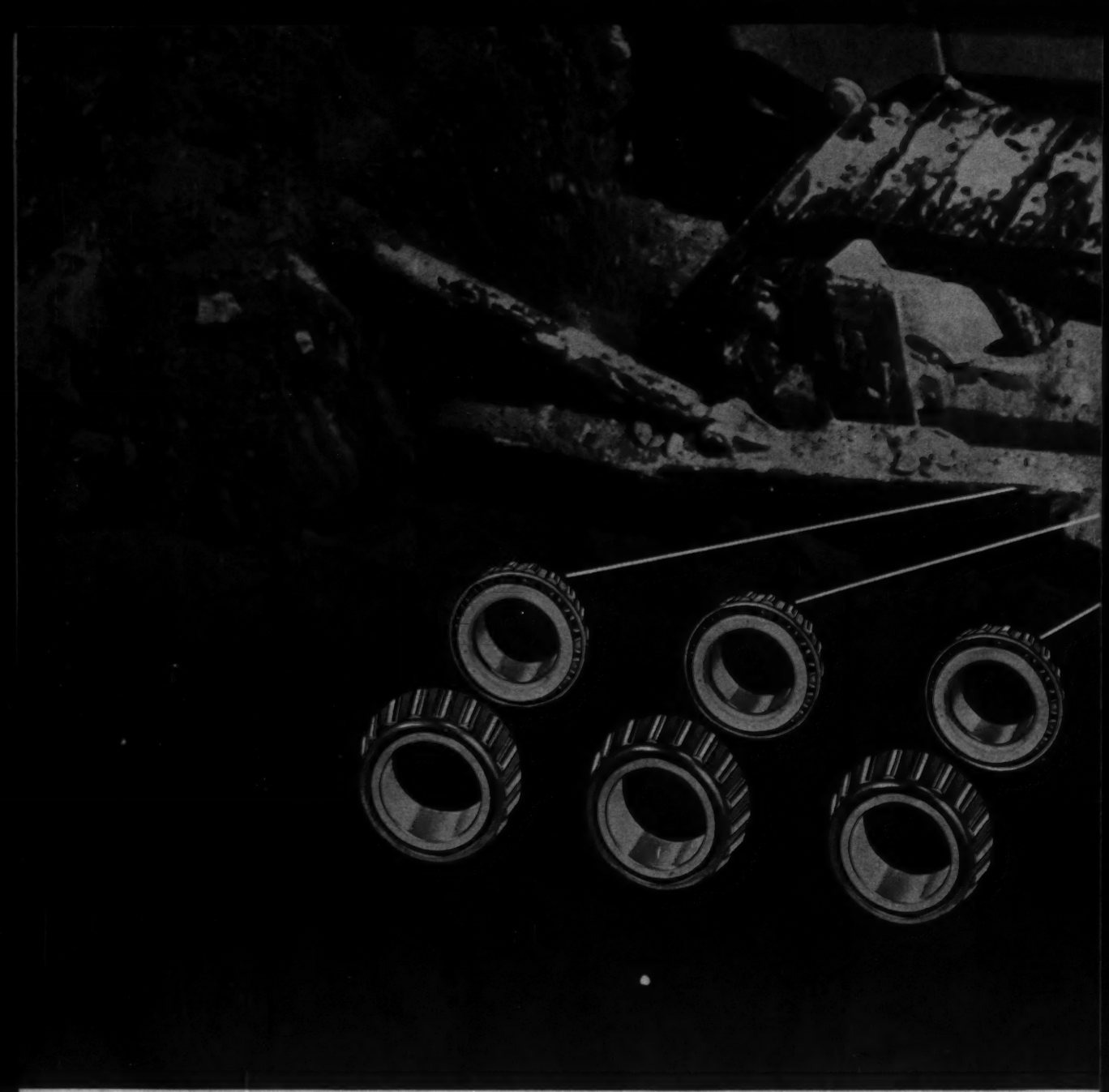
ENGINEERS: Morris Knowles, Inc., Consultants, Pittsburgh, Pa., R. B. Fleming, Resident Engineer.

CONTRACTOR: Ben Construction Co., Pittsburgh, Pa.

PIPE: Reinforced concrete, manufactured by Concrete Pipe Co. of Ohio, Cleveland, Ohio.

HAMILTON KENT
MANUFACTURING COMPANY
KENT, OHIO
427 West Grant Street Orchard 3-9555

CANADIAN PLANT: 10 Brussels St., New Toronto, Ont. Phone CLifford 1-2494



MORE WORK POWER

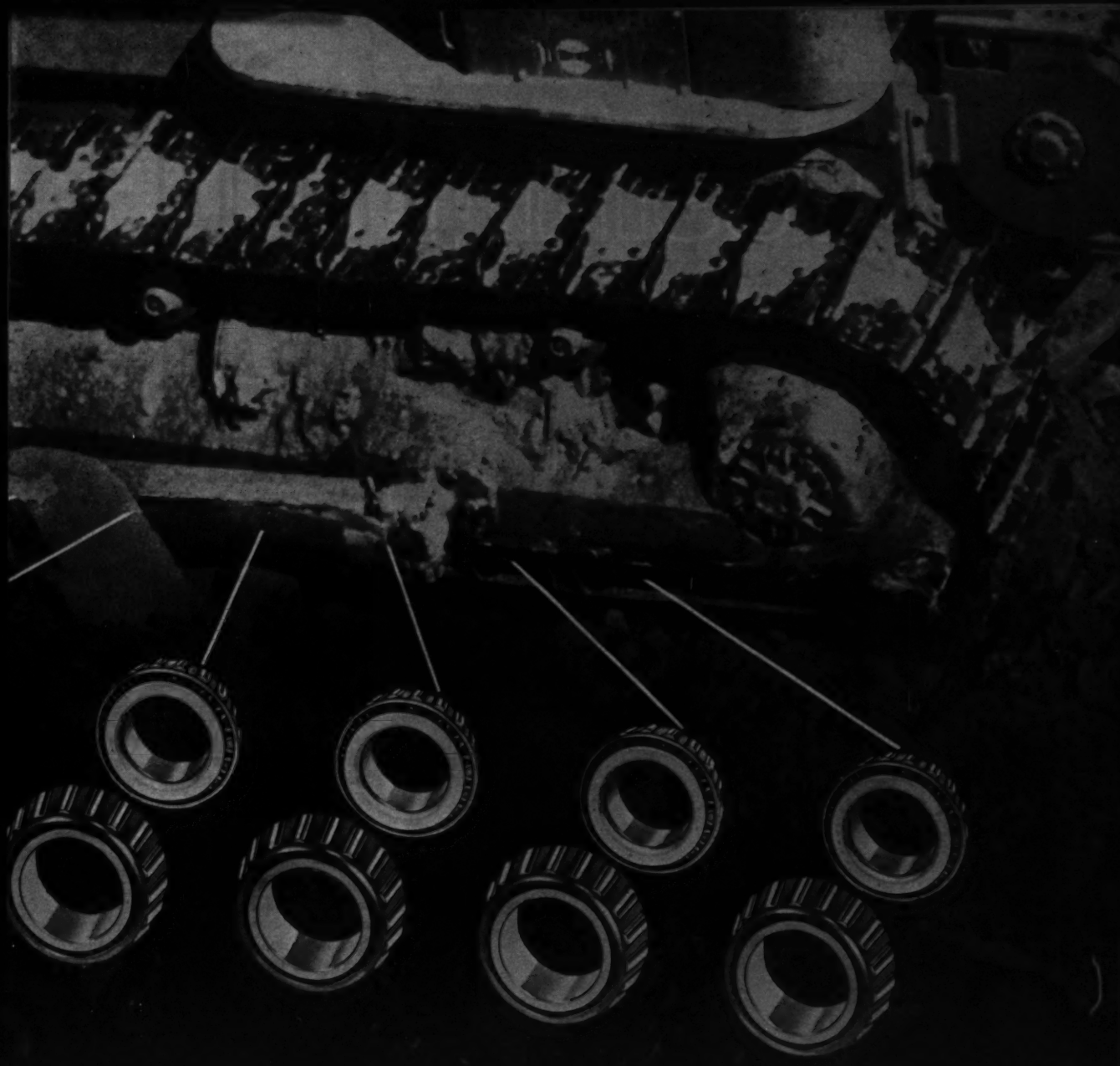
Reduced friction through use of tapered roller bearings in all Allis-Chalmers crawler tractors makes the difference in work power and profit for you!

All Allis-Chalmers crawler tractors roll on tapered roller bearing truck wheels. Most others still use bushings.

Anyone who remembers his roller skating days knows the performance advantages of bearings over bushings. The difference between first and also-ran was in the wheel bearing. This friction-reducing advantage is the reason railroads all over the country have turned to *roller* freight.

The same principle applies to tractors except much more power is being wasted by friction-type plain bushings. It's one of the reasons the 225-hp HD-21, on tapered roller bearings, produces right alongside the biggest tractors you can buy. Can you

move ahead with



PER HORSEPOWER

continue to pay for power that *never* produces—that gets "lost" in old-fashioned bushings?

Your Allis-Chalmers dealer will be glad to discuss this and the many other advantages that keep the HD-21 on the go shift after shift with a minimum of maintenance. Ask about the *toughest track ever built* . . . the *industry's healthiest engine* and *certified permanent lubrication*. Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wis.

ALLIS-CHALMERS A-C

power for a growing world

What's it costing you to slow down and shift?

It could well be costing you important time because of slower job cycles. This time is money you'd be saving with TORQMATIC DRIVES in your equipment—and the proof is on TORQMATIC owners' books.

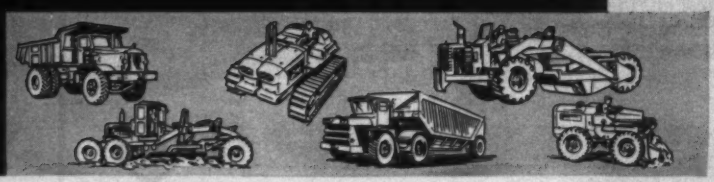
For these owners have their operators quick-shift at *full throttle*—never any power interruption. No more pumping of clutches and timing of shifts. What's more, they don't need a booster tractor to get moving in goo or gob. And these owners free their engines from the shock loads and strains which clash-boxes cause. Ending equipment damage saves them about $1,500 to $2,000 every time they train a rookie driver. Another $800 or more goes into the bank each year because they've wiped out engine-disconnect clutch costs.

The reason? TORQMATIC is controlled by a single, small shift lever. There's no leg-tiring disconnect clutch. TORQMATIC *automatically* adjusts engine power output and speed to load or terrain changes, absorbing harmful and expensive shock loads. It provides a steady, increasing torque to the wheels for a smooth standing start.

The men who are making the extra money—who are underbidding you on your contracts—are probably the men who have switched to TORQMATIC. They *know* they'll more than make up the initial extra cost of TORQMATIC in savings alone. You could, too. So see your equipment dealer or write Allison.

Allison Division of General Motors
Indianapolis 6, Indiana
In Canada: General Motors Diesel Ltd., London, Ontario

Allison TORQMATIC



TORQMATIC® DRIVES
THE MODERN DRIVE FOR MODERN EQUIPMENT

(Continued from page 104)

▲ **Saskatchewan**—COMPRESSOR STATIONS—Trans-Canada Pipe Lines Ltd., 150 Eglinton Ave. E., Toronto, Ont., soon lets contract compressor station for natural gas pipe line, Cabri, $1,000,000; compressor station for natural gas pipe line, Grenfell, $1,000,000; compressor station for natural gas pipe line, Herbert, $1,000,000; compressor station for natural gas pipe line, Regina, $1,000,000. CD 4/12.

HEAVY CONSTRUCTION—LB & CA

▲ **Piggott Constr. Co. Ltd.**, 1250 Bay St., Toronto, Ont., CA $1,473,599, elevated structure 480 ft. from west of Bathurst St. over Loblaw Grocerteria warehouse, Frederic G. Gardiner Expressway (Contract R-2-60), TORONTO, ONT. Municipality of Metropolitan Toronto, 67 Adelaide St. E., Toronto, Ont. Bids Mar. 25, awarded Apr. 4. CD 4/1, under LB.

BUILDINGS—LB & CA

Poole Constr. Co. Ltd., 2402-2A St. S.E., Calgary, Alta., CA Est. $750,000 (8 bidders), 150,000 sq. ft. WAREHOUSE, CALGARY, ALTA. J. H. Ashdown Hardware Co. Ltd., Winnipeg, Man. Bids Mar. 25. CD 3/21.

▲ **J. L. E. Price & Co. Ltd.**, 4664 St. Catherine St. W., Montreal, Que., CA Est. $1,500,000, BREWERY EXPANSION, incl. rein.-con. fermenting, bottling and garage, structural steel warehouse, MONTREAL, QUE. John Labatt Ltd., 50 Labatt Ave., LaSalle, Montreal, Que. Awarded Mar. 31. CD 2/4.

FOREIGN

HEAVY CONSTRUCTION—BA

▲ **Australia**—BA 5/10—Director of Works, Canberra, A.C.T., Australia, rein.-con. Canberra Lake Dam across Molonglo River. $2,250,000. Plans deposit $67.50.

BUILDINGS—BA

▲† **Turkey**—HOUSING—BA About 5/17—U. S. Eng., Mediterranean Div., Leghorn, Italy, APO 19, New York, N. Y., U.S.A., 360 unit housing near Karamusel and Adana. $3,000,000-$4,000,000.

PROPOSED PROJECTS

WATER SUPPLY

Tenn., Clarksville—City, City Hall, doubling filtration capacity city water plant $535,000; water distr. system expansion, $47,000. CD 5/4/51.

Tex., Fort Worth—City, City Hall, water main extension in sub-divisions. $675,000. Joe J. Rady, 1606 Cont. Life Bldg., Fort Worth, consult. engr. CD 2/1/54.

SEWERS, WASTE DISPOSAL

▲ **Conn., Colchester**—Borough, Borough Hall, sewage disposal plant. $1,000,000. Charles A. Maguire & Assocs., 530 Silas Deane Highway, Wethersfield, consult. engrs.

▲ **Ill., Champaign**—City, City Hall, defeated $4,500,000 bonds Mar. 29, sewers. CD 11/17.

▲ **N. J., Trenton**—City, City Hall, incinerator plant at Duck Island. $1,200,000.

N. C., Jamestown—City, City Hall, sewage treatment plant, sewers, pumping station, force mains, collection lines. $688,000. William F. Freeman, Jamestown, engrs. CD 4/1.

▲ **O., Cleveland**—City, Dpt. P. Service, City Hall, Zone 14, Kingbury Run Sewer, Section 2 from E. 79th St. to Sisaway Ave., $750,000, bids in summer; addnl. sewage pumping facilities to divert raw sewage from Cleveland Hopkins Airport area to Southerly Treatment Plant, $350,000. CD 11/9.

Pa., Camp Hill—Boro, Boro Hall, $791,000 bond election Apr. 26, municipal imprvs., incl. $590,000 sewer extension work. CD 3/24.

▲ **Tex., Fort Worth**—City, City Hall, Unit 1, West Fork collector mains, $500,000; Unit 2, West Fork collector main, $205,000; Joe J. Rady, 1606 Cont. Life Bldg., Fort Worth, consult. engr.; Unit 2, clear fork collector main, $340,000; Reaves & Gregory, 3332 West 7th St., Fort Worth, consult. engrs.; sanitary sewers to serve developments, $185,000.

▲ **Tex., San Antonio**—City, City Hall, outfall sewer main, Leon Creek, $2,000,000, Frank T. Drought, 342 W. Woodlawn Ave., P.O. Box 9147, Laurel Hgts. Sta., San Antonio, consult. engr.; sewage disposal plant, Leon Creek, $1,000,000, Irving S. Seligmann, 417 Dwyer Ave., San Antonio, consult. engr. CD 10/29/57.

STREETS AND ROADS

▲ **CALIFORNIA**—State Div. Hys., 1120 N St., Sacramento,

Fresno Co.—grading, paving to reconstr., wid'n. 12.9 mi. State Sign Rte. 33 between 2 mi. north of Mountain View and State Sign Rte. 180 in Mendota, $939,000. Bids in summer. CD 11/13.

Glenn Co.—wid'n. 1.1 mi. Willows-Butte City Hy. (State Hy. Rte. 45) between east city limits of Willows and Walker Creek incl. bridge over Willow Creek, $195,000. Bids in summer.

Humboldt Co.—3.9 mi. 4 lane freeway U.S. Hy. 101 between 0.4 mi. north of Sign Rte. 36 near Alton and 0.3 mi. north of Fortuna, $3,235,000. Bids in summer. CD 11/13, under Bridges.

Los Angeles Co.—traffic signals, hy. lighting, channelization and automatic crossing gates on Sepulveda Blvd. (State Sign Rte. 7) at Raymer St. and at adjacent Southern Pacific R.R. crossing, Los Angeles, $99,800. Bids in summer.

grading, paving to wid'n. 2.9 mi. State Sign Rte. 138 between 1.5 and 4.4 mi. east of Palmdale, $600,000. Bids in summer.

Modoc Co.—grading, paving to constr. 8.9 mi. 2 lane expressway on US Hy. 395 between 4 mi. north of Likely and 6 mi. south of Alturas, $1,050,000. Bids in summer.

Monterey Co.—retaining walls to protect fills and embankments at 14 shoreline locations along State Sign Rte. 1 between 2 mi. north of San Luis Obispo Co. line and 11.6 mi. north of Big Sur, $530,000. Bids in summer.

Riverside Co.—2.7 mi. 4 lane freeway US Hy. 60 between Main St. in Riverside and University of California campus, incl. interchange at jct. US 60 and US 91-395, $4,400,000. Bids in summer.

Sacramento Co.—wid'n. and shoulder imprvt. on sections State Sign Rte. 24 between Paintersville Bridge and 0.7 mi. south of Florin Rd. south of Sacramento, $120,000. Bids in summer.

San Bernardino Co.—shoulder wid'n., resurf. 28.7 mi. US Hy. 66 between 6 mi. east of Amboy and 1.5 mi. east of Essex, $500,000. Bids in summer.

San Diego Co.—erosion control and bluff protection work along section U.S. Hy. 101 between Cardiff and Encinitas, $490,000. Bids soon.

San Joaquin Co.—reconstr. southbound lanes on 6.7 mi. U.S. Hy. 99-50 between 1.5 mi. south of Lodi and the Calaveras River north of Stockton, $530,000. Bids in summer.

▲ **CONNECTICUT**—State Hy. Dpt., 24 Wolcott Hill Rd., Wethersfield,

Harwinton and Torrington—relocation Rte. 8, 5.1 mi. from 0.2 mi. S. of Rte. 118 in Harwinton N. to Alvord Park Rd. in Torrington, limited access, multi-lane divided expressway. $2,000,000. Philip W. Genovese & Assocs., 294 Elm St., New Haven, consult. engrs. CD 1/29/57.

▲ **CONNECTICUT**—State Hy. Dpt., 24 Wolcott Hill Rd., Wethersfield, Groton and Stonington, 4.1 mi. Interstate Rte. 95. $5,800,000. A. John Macchi, 44 Gillett St., Hartford, consult. engr. CD 8/21/58.

▲† **MONTANA**—Bureau P. Roads, Matomic Bldg., 1717 H St. N.W., Wash., D. C.,

Madison and Fremont Counties—23 mi. roads, Raynolds Pass road jct. on west to Duck Creek Wye road jct. about 8 mi. north of West Yellowstone. $3,000,000 ($950,000 appropriated).

▲ **OHIO**—State Hy. Dpt., State Dpts. Bldg., Columbus, Zone 15,

Jefferson Co.—Sunset Blvd. extension, incl. storm sewers from Brady west of corporation limit, $344,000.

Washington St. extension, $920,000. Barrett Association Engineers, Chillicothe, consult. engrs. both projects.

imprv. Rte. 7 between Stratton and Yellow Creek, $4,000,000.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 North Office Bldg., Harrisburg,

Cumberland Co.—reconstruct Rte. 11 between Harrisburg area and Rte. 1005, Anthracite Expressway. $1,750,000.

Lycoming Co.—reconstruct 6 mi. Rte. 15, between Steam Valley and Trout Run. $1,250,000. F. S. Poorman, c/o owner, engr.

▲ **Ont., Hamilton**—City, City Hall, roadway reconstr., $1,070,000; roadway resurf., various locations, $772,000; sidewalks, various locations, $330,000. CD 5/31/56.

▲ **Que., Montreal**—City, City Hall, 8½ mi. 8-lane expressway to connect Montreal west limits to Moreau St.; access roads and approaches to projected Champlain Bridge and Jacques Cartier Bridge, $130,500,000. Lalonde & Valois, 615 Belmont St., consult. engrs.

EARTHWORK, WATERWAYS

N. Y., Buffalo—City, Municipal Bldg., Zone 2, Squaw Island bulkhead, $850,000.

Texas—Navarro Hill Conservation Dist., Dawson, 15 flood detention structures, dam storage, earthen embankment, on Battle Creek, Navarro Co. $500,000.

▲ **Texas**—U.S. Eng., Box 1600, Fort Worth, Bardwell Dam and reservoir on Waxahachie Creek, near Ennis, $6,992,000 (no appropriation).

AIRPORTS

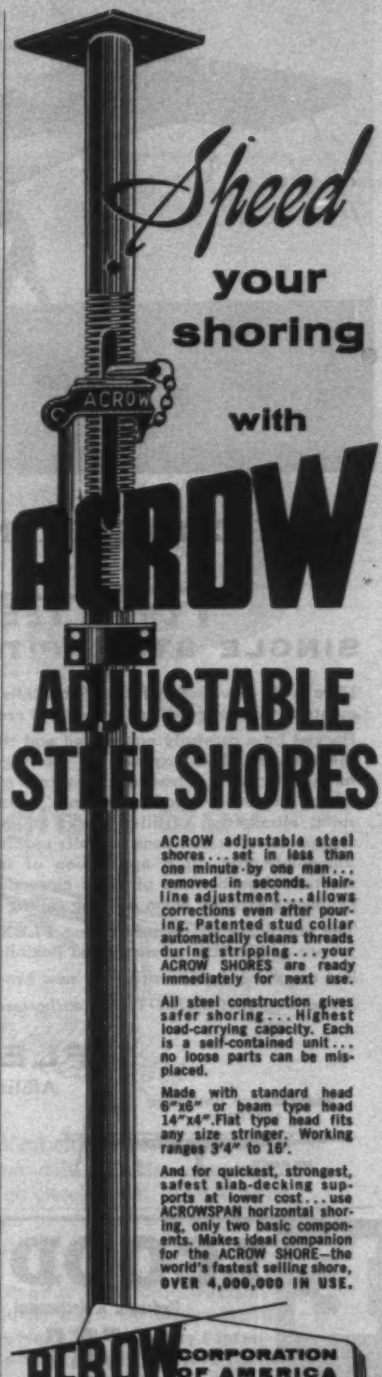
Md., Washington Grove—COMMERCIAL AIRPORT, etc.—Montgomery County Air Park, Inc., 880 Bonifant St., Silver Spring, commercial airport; plans by Philip Mason, 1107 Spring St., Silver Spring, administrative bldg. Total est. $750,000. Maddox & Hopkins, 8506 Dixon Ave., Silver Spring, consult. engrs.

PUBLIC BUILDINGS

Ark., Springdale—SCHOOL—Springdale School Dist. plans by E. Chester Nelson & Assocs., Merchants National Bank Bldg., Fort Smith, 74,000 sq. ft. brick, high school $750,000. Bids about May 1.

▲ **Calif., Los Angeles**—SCHOOLS—Bd. Educ., 1425 S. San Pedro St., $150,000,000 bond election Nov. 8, schools. CD 6/9/58.

▲ **Calif., Los Angeles**—CENTRAL AIR CONDITIONING PLANT—Bd. Supervs. Los Angeles County, 501 Hall of Records, central air conditioning plant, Los Angeles County General Hospital, Proj. 7818. $1,280,000. M. A. Nishkian, 3754 Long Beach Blvd., Long Beach, consult. engr. CD 7/17.



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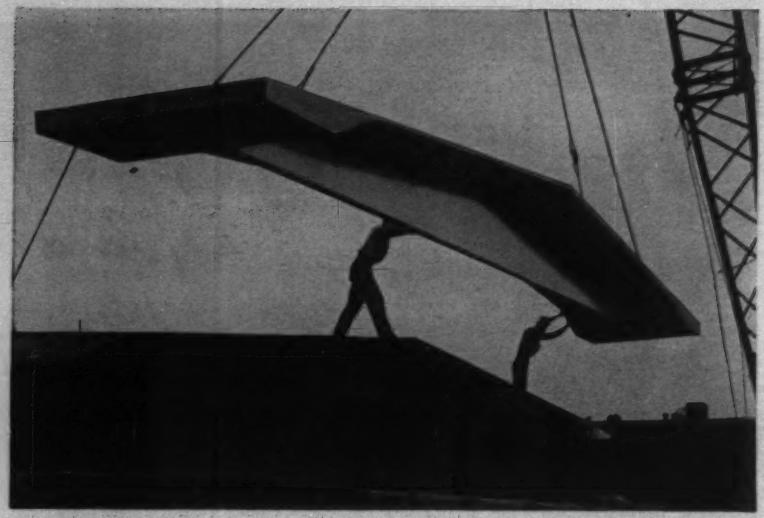

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Calif., Poway—SCHOOL—Poway Union School Dist., 12951 Pomerado Rd., elementary school, Sycamore Canyon and Garden Rds. $786,752.

Conn., Cheshire — SCHOOL — Town, Town Hall, Center School addn. $549,000.

▲ Conn., East Hampton—HIGH SCHOOL—Town, Town Hall, plans by Sebastian J. Passanesi, 164 Court St., Middletown, high school, $1,000,000. CD 1/6.

▲ Conn., Stamford—SCHOOL—Town, Town Hall, plans by Sherwood, Mills & Smith, 65 Broad St., Junior High School, Rosbury Rd. $3,100,000. CD 2/12/59.

▲ Fla., Jacksonville—AUDITORIUM—City, City Hall, auditorium, $4,500,000. Bids about June 1.

Ga., Ringgold—HOUSING—Ringgold Housing Auth., plans by Michael Hack, Henry Grady Bldg., Atlanta, housing units. Over $500,000.

▲ Idaho, Idaho Falls—SCHOOL—Idaho Falls School Dist. voted bonds Mar. 29, Junior High School, $1,400,000. CD 2/17.

▲ Ill., Aurora—SCHOOL—Bd. Educ., East Side Schools 56 Jackson St., voted bonds, Junior High School, $1,800,000. Bids in Spring. CD 11/3.

Kan., Wichita—COUNTY BOYS' DETENTION HOME—Sedgwick Co., Court House, plans by Feagins, Kirsch & Feagins, 4007 E. Kellogg, 2 story county boys' detention home. $595,000.

▲ Md., College Park—DORMITORIES—State Dpt. P. Imprvts., 30 W. Preston St., Baltimore, Zone 1, plans by Walton & Maddon, 3510 Rhode Island Ave., Mt. Rainier, 8 story, 500 capacity Centreville Hall women's dormitory, $1,500,000; plans by Johannes & Murray, 855 Pershing Dr., Silver Spring, Md., 4 story each 125 capacity Belair Hall and Chestertown Hall men's dormitories, $900,000, Maryland University.

▲† Mass., Chicopee Falls—HOUSING—U. S. A. Base Procurement Office, Westover Air Force Base, plans by Pederson & Tilney, 155 Whitney Ave., New Haven, Conn., 180 units Capehart Housing, Westover Air Force Base. $1,700,000.

▲ Mass., Framingham—CIVIL DEFENSE HEADQUARTERS—Commonwealth of Mass., Civil Defense Agency, c/o Div. Bldg. Constr., 38 Chauncy St., Boston, Mass., plans by S. S. Eisenberg, 739 Boylston St., Boston, G-801, Civil Defense Headquarters. $1,400,000. Constr. 1960-1961.

▲ Minn., New Ulm—SCHOOLS—Independent School Dist. No. 83, Brown County, $2,600,000 bond election Apr. 26, schools. Haarstick-Lundgren & Assocs., Inc., N. 212 First National Bank Bldg., St. Paul, archt.

Minn., Two Harbors—HIGH SCHOOL—Ind. School Dist. No. 381, plans by Bissell & Belair, 1111 Nicollet Ave., high school addn. $600,000. Constr. 1960. Orr-Schelen, Inc., 1104 Currie Ave., consult. engr.

Mo., Montgomery City—SCHOOL—Montgomery County School Dist. R-11 plans by Dan Sandford & Sons, 800 Westport Rd., Kansas City, Mo., Junior-Senior High School. $780,000. Bids in June or July, 1960. CD 3/3.

▲ Mo., St. Louis—SCHOOLS—St. Louis Bd. Educ., 911 Locust St., Zone 1, $29,535,000 bond election May 17, schools. CD 3/29.

▲† Nev., Mercury—TEST CELL C—Atomic Energy Comn., P. O. Box 5400, Albuquerque, N. M., plans by Air Products, Inc., archt.-engr., Trexlertown, Pa., Test Cell C, Project Rover, (Nuclear Rocket Propulsion Reactor) at Nevada Test Site, $8,000,000. Burns & McDonnell Engineering Co., 95th and Troost Sts., Kansas City, Mo., engrs. (Correction—project location). CD 3/8, under Nev., Mercury.

N. J., Butler—SCHOOL—Bd. Educ., voted project and bonds submitted at referendum Mar. 29, elementary school addn. $515,000, Lawrence Licht, 19 Knickerbocker Rd., Englewood, archt. CD 3/1.

▲ N. J., Edison—SCHOOLS—Bd. Educ., Edison Twp., Old Post and Colton Rds., referendum bonds and project May 10, Junior High School, New Dover Rd., $1,900,000; elementary school in Sutton Lane, $500,000; elementary school, Woodbridge Ave., $500,000.

▲ N. J., Elizabeth—HOUSING—City of Elizabeth Housing Auth., 688 Maple Ave., 250 unit housing, Proj. No. NJ34, $5,500,000.

▲ N. J., Millburn—SCHOOLS—Bd. Educ., Millburn Twp., Millburn Ave., plans by Epple & Seaman, 901 Broad St., Newark, elementary school, Deerfield section, $750,000; Senior High School addn., $400,000; Junior High School addn., $400,000. CD 5/31/56.

N. J., Morris Plains—SCHOOL—Bd. Educ., Speedwell Ave., defeated referendum on bonds and project Mar. 29, school addn., Speedwell Ave. $600,000. Alfonso Alvarez, 204 Bellevue Ave., Upper Montclair, archt. CD 3/3.

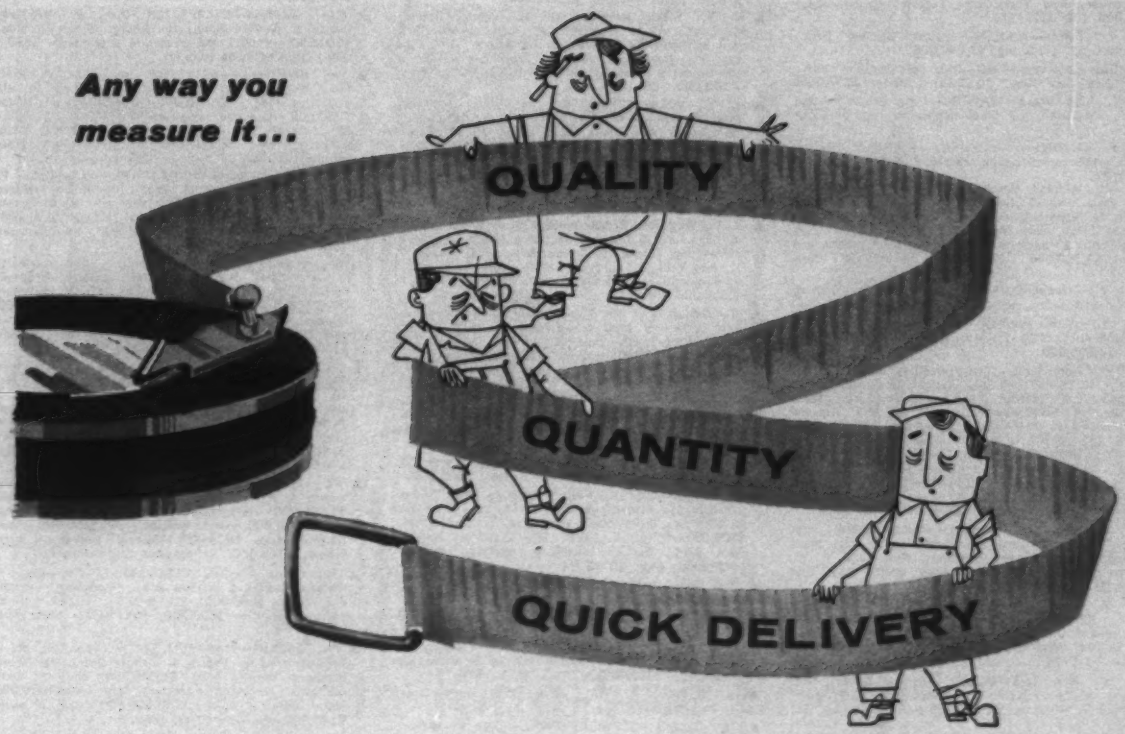
▲ N. J., Mount Holly—JUNIOR HIGH SCHOOL—Mount Holly Twp. Bd. Educ., Jacksonville Rd., voted $1,100,000 bonds Mar. 29, 27-room Junior High School, 10-acre tract off Oak Lane in Bartram Manor Section, $1,300,000. CD 1/21.

▲ N. J., Wyckoff—SCHOOL—Bd. Educ., Woodland Ave., 2 story school for 7th and 8th grades. $1,700,000.

▲† N. Y., Brookhaven—CONVENTIONAL STEAM GENERATING PLANT ADDN.—Atomic Energy Comn., Eng. & Constr. Bldg., 53 Bell Ave., conventional steam generating plant addn., Brookhaven National Laboratory. Gibbs & Hill, Inc., Penn. Station, New York 1, N. Y., consult. engrs., are making engineering study. CD 10/26/55.

▲ N. Y., Fredonia—GYMNASIUM—State Dpt. P. Wks., State Office Bldg., Albany, plans by Moore & Hutchins, 800 Second Ave., New York, Zone 17,

(Continued on page 112)



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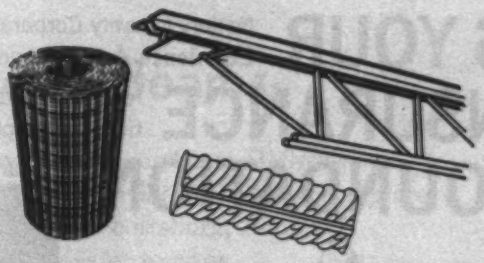

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OTHER DIVISIONS AND SUBSIDIARIES: Armco Division • The National Supply Company • Armco Drainage & Metal Products, Inc. • The Armco International Corporation • Union Wire Rope Corporation • Southwest Steel Products

(Continued from page 110)

gymnasium, New York State Teachers College. $1,200,000. CD 3/27/57.

▲ N. Y., Fulton—HOUSING—Fulton Housing Auth., 60 units public housing. $1,044,000.

N. Y., Glen Cove—HOUSING—Glen Cove Housing Auth., 140 Glen Cove Ave., 50 housing units. $897,000.

▲ N. Y., Long Beach—HOUSING—Long Beach Housing Auth., City Hall, 65 units public housing. $1,135,000.

▲ N. Y., Middletown—HOUSING—Middletown Housing Auth., 100 units public housing. $1,664,000. CD 7/16/54.

▲ N. Y., Midland Beach—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, plans by Frederick P. Wiedersum Assocs., 10 Columbus Circle, New York, Proj. E-464, Junior High School No. 2, Bedford and Boundary Aves., Richmond Boro. $3,300,000. CD 1/25, under N. Y., New Dorp.

▲ N. Y., Newburgh—HOUSING—Newburgh Housing Auth., 110 units public housing. $1,900,000.

▲ N. Y., New Rochelle—HOUSING—New Rochelle Housing Auth., 750 5th Ave., 150 units public housing. $2,805,000.

▲ N. Y., New York—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, plans by Brown & Gunther, 1860 Broadway, New York, N. Y., Proj. E-772, Junior High School 133, Stebbins Ave. and East 165th St., Bronx Boro. $3,500,000. CD 1/25.

▲ N. Y., New York—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, plans by A. Gordon Lorimer, 254 West 54th St., New York, N. Y., Proj. E-806, P. S. 111, Baychester and Needham Aves., Bronx Boro. $2,400,000. CD 1/25.

▲ N. Y., New York—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, plans by Samuel Juster, 366 Broadway, New York, N. Y., Proj. E-509, Public School 116 addn., 210 East 33rd St. $1,800,000. CD 1/25.

▲ N. Y., New York—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, plans by Edward D. Stone, 38 E. 65th St., Proj. E-418 P. S. 199, West End Ave. and W. 70th St. $2,400,000. CD 1/25.

▲ N. Y., New York—SCHOOL—Bureau Constr., Bd. Educ., 45-12 Crescent St., Long Island City, plans by Paul R. Williams, 3757 Wilshire Blvd., Los Angeles, Calif., Proj. E-459, P. S. 154, vicinity of St Nicholas Houses, Manhattan Boro. $3,000,000. CD 3/31/58.

▲ N. Y., Nyack—HOUSING—Nyack Housing Auth., Village Hall, 100 units public housing. $1,870,000.

▲ N. Y., Oswego—HOUSING—Oswego Housing Auth., 70 units public housing. $1,190,000.

▲ N. Y., South Jamaica—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, plans by Frederick G. Frost Jr. & Assocs., 144 East 30th St., New York, N. Y., Proj. E-434, Junior High School 8,167th St. and 108th Rd. Queens Boro. $3,500,000. CD 1/25.

▲ N. Y., Vestal—DORMITORY, etc.—Dpt. P. Wks., State Office Bldg., Albany, plans by Moore & Hutchins, 800 Second Ave., New York, Zone 17, dormitory $650,000; Dining unit $850,000. Harpur College. CD 3/26/57, under N. Y., Endicott.

▲ N. Y., Webster — HIGH SCHOOL — Webster Central School Bd. Educ., plans by Benedict Ade, 840 University Ave., Rochester, high school. $3,000,000.

▲ N. Y., West New Brighton—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, plans by DeYoung, Moskowitz & Rosenberg, 205 East 42nd St., New York, N. Y., Proj. E-520, Junior High School 27, Elizabeth St. and Clove Lake Pl., Richmond Boro. $3,500,000. CD 1/25.

N. C., Dobson—SCHOOL—Surry Co. Bd. Educ., Courthouse, plans by Fred W. Butner, Jr., 655 W. 5th St., Winston-Salem, East Surry High School, Pilot Mountain, $650,000. Harry E. Crossley, 234 N. Main St., Winston-Salem, structural engr. Wassell Engineering Service, 628 Nissen Bldg., Winston-Salem, plumbing, heating, electrical engr. CD 12/3.

N. C., Greensboro—ARMORY—Bd. Supervs. Guilford Co., Courthouse and City of Greensboro, City Hall, National Guard Armory, $500,000.

N. C., Hillsboro—SCHOOL—Orange County School Bd., Hillsboro, Northern Orange High School, $500,000.

N. C., Raleigh—PHYSICS—North Carolina State College, Hillsboro St., plans by Ballard, McKim & Sawyer, 612 S. 17th St., Wilmington, 54,000 sq. ft. physics bldg. $800,000. Walter G. Smith, 209 Depositors National Bank Bldg., Durham, plumbing, heating, elec., air conditioning engr. CD 12/24.

N. D., Devils Lake—HOME FOR AGED—Lake Region Lutheran Homes, plans by Schaefer, Plumton & Nipper, Foshay Tower, Minneapolis, Minn., Home for Aged, $500,000.

▲ O., Cleveland—SCHOOLS—Bd. Educ., 1380 E. 6th St., Zone 14, 2 year, 4 mill levy to be voted May 3, schools, $22,000,000. CD 11/11/57.

▲ O., Lorain—CITY HALL—City, City Hall, constr. city hall, $1,500,000.

▲ Pa., Danville—GERIATRICS, etc.—Dpt. P. Welfare, Health & Welfare Bldg., Harrisburg, replace geriatrics north $3,000,000, remodel geriatrics south $1,000,000, remodel Ray Bldg. $1,000,000, remodel Dix Bldg. $1,000,000, remodel and extend hospital $750,000, at Danville Station Hospital.

▲ Pa., Glenfield—RECREATION—Dpt. P. Welfare, Health & Welfare Bldg., Harrisburg, recreation bldg. $800,000; renovate and modernize annex bldg. $650,000., Dixmont State Hospital.

▲ Pa., Harrisburg—GERIATRICS, etc.—Dpt. P. Welfare, Health & Welfare Bldg., Harrisburg, female geriatrics bldg. $2,000,000, medical center addn. $850,000, renovated male and female wards $1,000,000, chapel and recreation bldg. $900,000, male geriatrics bldg $2,000,000, for Harrisburg State Hospital.

▲ Pa., Hollidaysburg—AUDITORIUM, etc.—Dpt. P. Welfare, Health & Educ. Bldg., Harrisburg, replace auditorium and chapel $500,000; central warehouse $400,000; maintenance shop and garage $250,000; and lighting for grounds, $108,000, Hollidaysburg State Hospital CD 3/1/56.

▲ Pa., Mayview—DORMITORY—Dpt. P. Welfare, Health & Welfare Bldg., Harrisburg, female convalescent dormitory $2,500,000, renovate convalescent TB dormitory $440,000, male convalescent dormitory $2,500,000, revamp laundry $230,000, utility and maintenance bldg. $175,000, and install street lighting facilities, $140,000. Mayview State Hospital.

▲ Pa., Norristown—WARD, etc.—Dpt. P. Welfare, Health & Educ. Bldg., Harrisburg, Ward Bldg. No. 10, $1,600,000; reconstruct interior Ward Bldgs 3 and 4, $1,200,000; reconstruct Interior Ward Bldgs. 2 and 5, $1,200,000; renovate admin. No. 19, and Chapel Hall bldg. $500,000; garage $250,000; barn $140,000, reconstruct corridors connecting bldgs. $90,000, Norristown State Hospital. CD 2/10/47.

▲ Pa., Phila.—ADMISSIONS, etc.—Dpt. P. Welfare, Health & Welfare Bldg., Harrisburg, admissions bldg. $4,500,000, recreation bldg. $2,000,000, incinerator plant $450,000, expand heating plant $150,000, maintenance shops $800,000, improve emergency water towers, $100,000. Philadelphia State Hospital.

▲ Pa., Phila.—BLDG. RENOVATION, etc.—Dpt. P. Welfare, Health & Welfare Bldg., Harrisburg, renovate E-8 Bldg. $800,000, CD 3/1/56; install grounds lighting facilities $600,000, Philadelphia State Hospital.

▲ Pa., Waymart—MAXIMUM SECURITY BLDG., etc.—Dpt. P. Welfare, Health & Welfare Bldg., Harrisburg, maximum security bldg. $1,000,000. Ward S. addn. $500,000, combined instructural farm bldg. $285,000, install 400 h.p. boiler, $150,000, drill 2 water wells, $145,000. Fairview State Hospital.

▲ R. I., Providence—SCHOOL—City, School Building Com., City Hall, plans by Joseph M. Mosher & Son,

(Continued on page 117)

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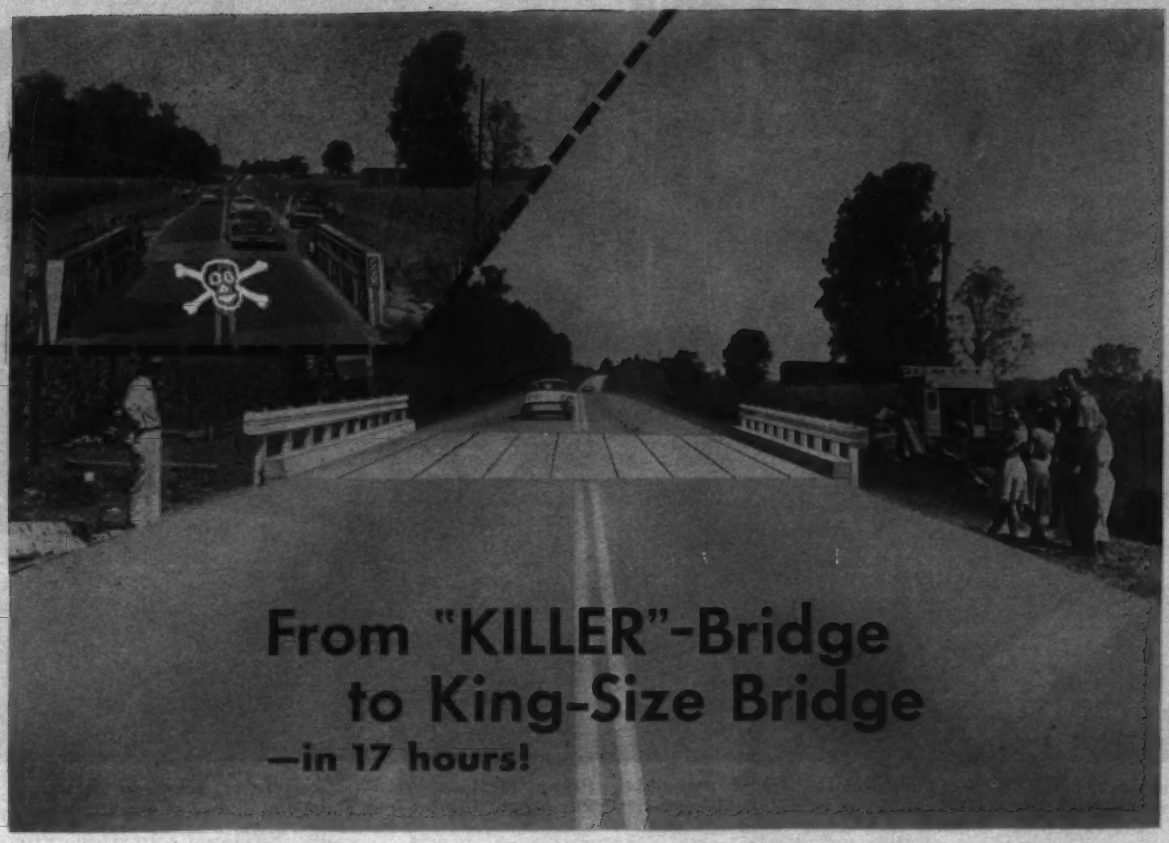

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Quickly, easily Steeltex goes down at superbly designed Canevin High School, Pittsburgh, where 60,000 square feet of Steeltex support concrete floor slabs. Architect: Celli-Flynn, McKeesport, Pa. Contractor: Navarro Corp., Pittsburgh. Steeltex from Pittsburgh Steel Co. was specially commended for its installation features on this project.

Architect, Contractor Find . . .

Steeltex Saves 35 Cents per Square Foot

"I estimate we saved about 35 cents per square foot by using Steeltex instead of another material on the Baptist Hospital addition in Pensacola. Steeltex' quick installation also helped us meet our construction timetable easily."

Man speaking: President Raymond C. Dyson of Dyson and Company, Pensacola, Fla., general contractors.

Job: $1¼-million addition to Baptist Hospital. Here, Pittsburgh Steel Company supplied 70,000 square feet of Steeltex, the waterproofed, paper-backed wire mesh reinforcing used in the concrete floors and roof slabs.

Like Mr. Dyson, Architect Charles H. McCauley has used Steeltex for more than 20 years. He, too, knows Steeltex helps provide better construction at lower costs.

"I specified 100,000 square feet of Steeltex when the main hospital building was erected eight years ago," said Mr. McCauley. "Naturally, I specified it again when the addition was built. I think this shows I am enthusiastic about the qualities of Steeltex."

• **Cost 30-40 Percent Less**—Similar comments came from Cleveland where Architect Eugene W. Gray and Contractor William Passalacqua were responsible for constructing the new $600,000 Child Welfare Division Building.

Mr. Gray and O. E. Kronenwetter, chief engineer for Passalacqua Builders, estimated that 30,000 square feet of Steeltex in floor slabs cost 30 to 40 percent less than methods generally specified.

• **On Pittsburgh Job**—When Steeltex was combined with Pittsburgh Steel's wire mesh to support 60,000 square feet of concrete floor slabs at Canevin High School in Pittsburgh, Steeltex was specially commended for its installation features.

Joseph V. Cutuly, job superintendent for the general contractor, Navarro Corporation of Pittsburgh, likes Steeltex because "it takes more punishment during installation than a sheet metal, goes down faster and is much easier to handle."

Dean Regan, foreman of the crew that installed Steeltex in the $2½-million building, has used Steeltex on more than 55 jobs in ten years.

"Steeltex is very easy to install. Just unroll it, cut, tighten and clip," he said.

• **Makes Stronger Slab**—William B. Tabler of New York City, architect for the $2½-million Hilton Inn at the San Francisco Airport where 65,000 square feet of Steeltex supports the floors, pointed out additional Steeltex features. Said Mr. Tabler:

"Steeltex retains moisture and cement to a greater degree than lath. This makes a cleaner job. Also, the sag from the concrete cradled in the Steeltex gives additional lateral resistance which aids earthquake construction."

Snug fit of Steeltex around drain pipe at Canevin High School is shown by Joseph V. Cutuly, job superintendent (l.), and Foreman Dean Regan. Mr. Cutuly says, "Steeltex takes more punishment during installation than a sheet material, goes down faster and is much easier to handle."

At luxurious Hilton Inn, San Francisco Airport, 65,000 square feet of Steeltex in floor slabs aid earthquake construction. Architect: William B. Tabler, New York City. Contractor: Cahill Construction Co., San Francisco.

• **New Users Like Steeltex**—Steeltex also is endorsed by new users such as the architectural firm of Charles Bacon Rowley and Associates, Inc., and Ernst Payer, and Contractor Albert M. Higley Company, both of Cleveland. They teamed up on building the $805,000 Western Reserve Historical Society Museum in their city.

Superintendent Albert M. Higley Jr. estimated "perhaps a four percent savings was realized by using 11,500 square feet of Steeltex instead of placing conventional roof structures."

• **Will Use Again**—Another satisfied new user is Irving D. Robinson, architect for the new $325,000 Luria Brothers Building in Cleveland.

Mr. Robinson said: "This is the first time I specified Steeltex and I am sure I will use it many times again. Steeltex permitted work to continue on the floors without planking or scaffolding, although the concrete slab was not poured for many weeks after the 12,000 square feet of Steeltex were installed." Contractor for the job was J. L. Hunting Company, Cleveland.

Whether you are a veteran Steeltex user or a newcomer, you cannot afford to pass up using Steeltex on your next construction job.

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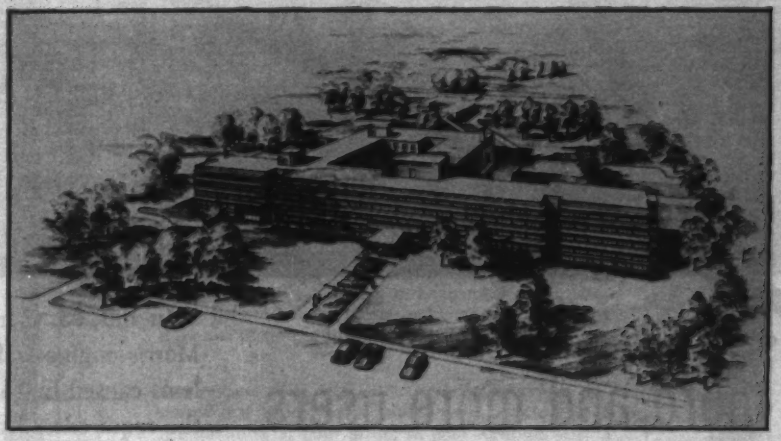

$24,500 was saved on cost of material and labor by using 70,000 square feet of Steeltex in the Baptist Hospital addition in Pensacola. Architect: Charles H. McCauley, Birmingham. Contractor: Dyson and Company, Pensacola.

See Sweets Catalog Section 2-B

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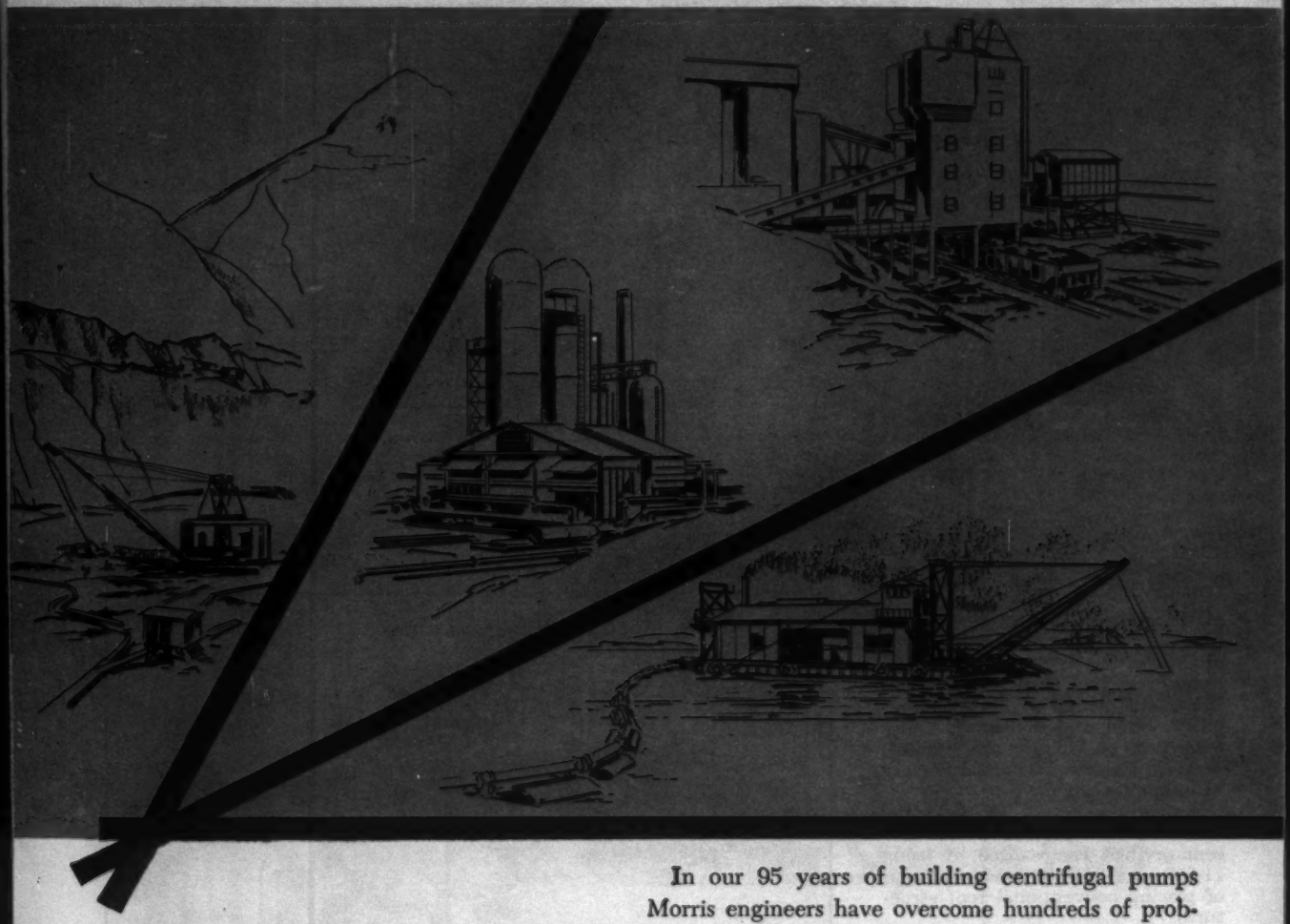

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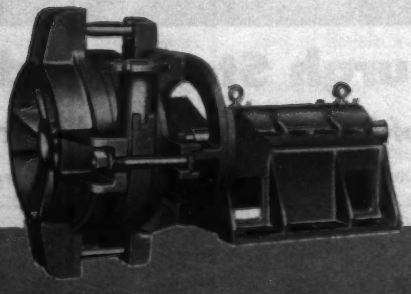

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(Continued from page 112)

Inc., 77 Washington St., Providence, Smith Hill Elementary School, Danforth and Chad Brown Sts. and Camden Ave. $1,000,000.

▲ Tenn., Winchester—PLANT—City, City Hall, plant $1,500,000.

▲ Va., Chatham—SCHOOLS—Pittsylvania Co. School Bd., Chatham High School $1,000,000; Gretna High School, Gretna, $1,000,000; Dan River High School near Danville, $1,000,000; Turnstall High School near Gretna, $1,000,000; Dan River Elementary School, near Danville $600,000; Brosville School, near Gretna $600,000; elementary school, Chatham $400,000; elementary school, near Danville, $400,000; elementary school, Gretna, $400,000; elementary school, near Gretna $400,000; elementary school, near Chatham $400,000.

Va., Danville — ARMORY — City, City Hall, armory, $500,000.

Va., Luray—SCHOOLS—Page Co. P. Schools plans by Pickett & Siess, 110 Gordon Rd., Falls Church, high school between Shenandoah and Stanley. $520,000. CD 11/19/59; school $420,000.

Va., Staunton—SCHOOL—City School Bd., plans by Smithey & Boynton, 319 McClanahn, Roanoke, Westside Junior High School, $600,000.

▲ Wash., Lacey—JUNIOR HIGH SCHOOL—North Thurston School Dist. 3, voted special levy Mar. 8, Junior High School, $1,035,000. Bids this summer. W. A. Johnson, 3506 Broadway, Everett, archt. CD 2/29.

▲ Wash., Longview—JUNIOR HIGH SCHOOL—School Dist. 122, Longview, Junior High School $1,000,000. Constr. next year. CD 12/18/57.

Wash., Millwood—HIGH SCHOOL—West Valley School Dist., voted $955,000 bonds Mar. 8, high school, $800,000. CD 2/19.

▲ Wash., Shelton—PRISON—State Dpt. Institutions, General Admin. Bldg., Olympia, plans by Bassetti & Morse, Tower Bldg., Seattle, Zone 1, Walker, McGough & Trogdon, Great N. W. Life Ins. Bldg., Spokane, and Curtis & Davis, 2475 Canal St., New Orleans, La., medium-security prison, $8,500,000. Constr. next year. CD 4/5.

▲ Ont., North Bay—HOUSING—Central Mortgage & Housing Corp., 650 Lawrence Ave. W., Toronto, 200 unit military housing, Barmarc Site, $2,000,000.

Ont., Port Arthur—WOMENS REFORMATORY, etc.—Dpt. P. Wks., Rm. 6630 East Block, Parliament Bldgs., Toronto, women's reformatory and training school for juveniles. Over $500,000.

▲ Ont., Toronto — HOSPITAL — Municipality of Metropolitan Toronto, 67 Adelaide St. E., plans by Chapman & Hurst, 61 Avenue Rd., 7 story Riverside Hospital, Broadview Ave. $8,000,000. C. D. Carruthers & Wallace, Consultants Ltd., 92 Yorkville Ave., consult. engrs. CD 2/20/59.

▲ Que., LaTuque—SCHOOL—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., plans by Maurice Denoncourt, 1240 Royale St., Three Rivers, 2 story, Z-shaped, 44x244 ft. and two wings, 44x72 ft. school on Indian Reservation, $1,000,000. CD 4/27/59.

COMMERCIAL BUILDINGS

▲ Ariz., Tempe—HOTEL—Arnold Becker & Assocs., 8900 N. Central Ave., Phoenix, plans by Fred M. Guirey & Assocs., 506 E. Camelback Rd., Phoenix, 104 unit Sands of Tempe Hotel, SW Corner of Apache Boulevard and McAllister. $2,000,000. Bids about May 1.

▲ Ark., Fort Smith — SHOPPING CENTER — Paul J. Bercher, 217 Bell St., and Jewell R. Morrison, Olive Springs Rd., constr. Phoenix Village Shopping Center, parking areas at Townsend Ave. and Phoenix St. $1,000,000.

▲ Colo., Denver—OFFICE—United Fund, Inc., 314 14 St., plans by Smith & Hegner, Room 206, 817 17 St., Denver, office bldg., W. 14 and Delaware Sts. $1,000,000.

▲ Conn., North Coventry (P.O. Rockville)—L. F. DeMars, Trowbridge Rd., North Coventry, 75 houses, Cornwall Acres, Rte. 44A. $1,312,500.

▲ Conn., Stratford—HOTEL-MOTEL—Robert Del Buono, 269 Puritan Rd., Fairfield, plans by John W. Handy, 2268 Main St., Marine Hotel-Motel, Stratford Ave., "Stratford Festival Marine Hotel," 2 swimming pools, glass restaurant, Marina Base on Housatonic River, $1,000,000.

Conn., Thompsonville—HOUSES—Paul Starr, Avon St., Hazardville, 65 houses, "Starridge", Brainard Rd., North Thompsonville. $844,350.

Conn., Waterbury—BOWLING ALLEY—Benjamin D. Schulman, 260 Lee St., Boston, Mass., bowling alley, Lakewood Ave., All Star Lanes. $600,000.

Conn., Watertown — CLASSROOM — Taft School, 110 Woodbury Rd., plans by Jeter & Cook, 36 Pearl St., Hartford, 2 story science classroom bldg. $600,000. VanZelm, Heywood & Shadford, 1007 Farmington Ave., consult. engrs. CD 12/17.

▲ Conn., West Hartford—HOUSES—Carabillo Constr. Co., 99 Mountain Terrace Rd., plans by Bartlett & Freligh, 820 Park Ave., Bloomfield, 40 houses, "Treeborough Farm", Mountain Rd. $1,600,000.

▲ Fla., Largo—APARTMENT—Stan Freifeld & Assocs., Seminole Bldg., plans by O. C. R. Stagberg, 5705 Tangerine Ave. S., Gulfport, 10 story apartment, medical and research bldgs., 5 Ave. North at 33 St. $1,000,000.

Fla., Winter Park — APARTMENT — Herbert Ross, Developer, 1401 Griffin Ave., Orlando, plans by Joseph M.

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▲ **Hawaii, Kaanapali Beach**—BEACH RESORT, etc.—Pioneer Mill Co., 745 Fort St., Honolulu 13, beach resort and 18-hole golf course. $1,500,000.

▲ **Idaho, Lewiston**—SHOPPING CENTER—Dunstan Co., 9747 N.E. Lake Washington Blvd., Bellevue, Wash., plans by K. D. Storment, Hutton Bldg., Spokane, Wash., 93,000 sq. ft., masonry shopping center in Lewiston Orchards. $2,000,000. Constr. in late spring.

Ill., Alton—MEDICAL CENTER—Harry E. Hemphill, Alton, medical center, East 20 and Henry Sts. $500,000.

Ill., Decatur—DORMITORY—Millikin University, 1184 W. Main St., plans by Spangler, Beall & Salogga, 132 S. Water St., 80 women dormitory and dormitory remodeling, $546,000. CD 2/3.

Ill., Des Plaines—OFFICE—Butler Bros., 165 N. Canal St., Chicago, Zone 6, office addn., Wolf Rd. and Oakton St. $500,000. Bids in summer 1960.

▲ **Ill., East St. Louis**—Y.M.C.A. HEADQUARTERS—East St. Louis Young Men's Christian Assn., 1750 State St., multi-storied Y.M.C.A. headquarters. $1,500,000.

▲ **Ill., Evanston** — STUDENT CHAPEL — Northwestern University, 619 Clark St., student chapel, Sheridan Rd. and Chicago St. $1,200,000. Bids in spring, 1961.

▲ **Ill., Naperville**—HOSPITAL—Edward Hospital, S. Washington St., plans by Jensen & Halsted, 228 N. LaSalle St., Chicago, Zone 1, hospital, $1,750,000. Bids about Apr. 15. CD 9/25/57.

▲ **Ill., River Grove**—SCHOOL—Brothers of Holy Cross, Midwest Province Notre Dame, Ind., plans by B. J. Knowles, 506 Commerce Bldg., St. Paul, Minn., high school gym and library, $1,500,000. Bids in summer.

▲ **Ill., Springfield**—SHOPPING CENTER—Morris-Skilken, 696 E. Broad St., Columbus 15, O., shopping center, US 66 bypass east of here. $4,000,000.

Ind., Crown Point—HOME—Franciscan Sisters of Blessed Kunegunda, St. Anthony's Home, Crout and Crown Point Sts., St. Anthony's Home addn. $500,000.

▲ **Minn., St. Paul**—SHOPPING CENTER—Paien Center, Inc., subsidiary C. G. Rein Co., 419 Commerce Bldg., 264,000 sq. ft. shopping center, 2500-car parking, NE corner Prosperity Ave. and Johnson Parkway. $10,000,000. Constr. soon. (Correction—owners' address). CD 3/21.

Miss., Yazoo City—OFFICE—Owner, c/o Godfrey & Bassett, archts., 151 Raymond Rd., Jackson, Miss., 7 story office, Jefferson and Washington Sts. $700,000.

▲ **Neb., Omaha**—MOTOR HOTEL—Barton H. Ford, 112 N. 40 St., plans by Stanley J. How, 8401 W. Dodge Rd., 2 story, 400-unit stone, aluminum motor hotel, $5,000,000-$6,000,000.

▲ **N. J., Butler**—HOUSES—Fayson Lakes Community, Inc., c/o John Stovehen, plans by Eugene M. Galloway, 200 South Ave., Scotch Plains, 85 houses, Brook Valley Rd., Kinnelon. $1,500,000.

N. J., Eatontown—HOSPITAL—Doctors Memorial Hospital, 719 Westwood Ave., Long Branch, plans by Godfrey Ricci, Morris Ave., Long Branch, 1 story, brick private hospital, Grant Ave. $600,000.

N. J., Eatontown—HOUSES—Stanley Development Co., c/o Samuel Sodowick, 24 Commerce St., Newark, 54 houses on new streets off Old Deal Rd. $500,000.

N. Y., Cazenovia—ACADEMIC—Cazenovia Junior College plans by Moore & Hutchins, 800 Second Ave., New York, Zone 17, academic bldg. $750,000.

▲ **N. Y., New York**—HOTEL—Lowe's Theatres, Inc., 5140 Broadway, plans by Morris Lapidus, Kornblath, Harle & Liebman, 256 E. 49th St., Zone 17, 19 story hotel, Lexington Ave. and East 51 St. $5,000,000.

N. C., Charlotte — OFFICE — A. Lloyd Goode, Wilder Bldg., plans by Charles W. Connelly, 1201 Elizabeth Ave., 5 story, 38,500 sq. ft. office. $500,000. Bryan & McDowell, 1203 Elizabeth Ave., plumbing and heating engr.

▲ **N. D., Bismarck**—HOSPITAL—St. Alexius Hospital, Benedictine Sisters of the Annunciation, plans by Thorshov & Cerny, Inc., W-2781 First National Bank Bldg., St. Paul, Minn., and B. Hillyer, assoc. archts., 103½ N. 4th St., Bismarck, hospital addn., remodeling. $1,144,000. Bids in July. CD 11/20.

▲ **O., Akron** — OFFICE — Owner, c/o Irving Portman, Second National Bldg., glass, aluminum office, Medina Rd. near Miller Rd., just west of here. $1,000,000.

▲ **O., Alliance**—DINING HALL—Mount Union College, 219 W. State St., plans by Mellenbrook, Foley & Scott, 20 Beach St., Berea, Commons Dining Hall, student union. $1,000,000. CD 3/14.

▲ **O., Austintown (Br. Youngstown)**—HOMES—Jewel Homes, 3497 E. Livingston St., Columbus, 350, brick homes, air conditioning, Arlington Development, $5,500,000.

▲ **O., Brookville**—HOMES—Mid-Eastern Builders, Inc., 409 W. 2nd St., Dayton, 101 homes, Brookville Heights. $1,370,000.

O., Kettering—SHOPPING CENTER—Wentzler Bros. Constr. Co., 432 Lookout Ridge, Dayton, 70,000 sq. ft. 12 unit shopping center, Stroop and Marshall Rd. $500,000.

▲ **O., Lebanon**—HOMES—Mid-Eastern Builders, Inc., 409 W. 2nd St., Dayton, 527 homes, Corwin Heights Subdivision, $7,200,000.

▲ **O., Mayfield Heights**—SPORTS ARENA—Morris Cohen & Leo Bilsky, c/o Mayflower Lanes, 13961 Cedar Rd., Cleveland, Zone 18, family sports arena at Eastgate Shopping Center. $1,500,000. H. K. Vokes Co., 1000 Wayside Rd., Cleveland, Zone 10, consult. engr. CD 1/12.

▲ **O., Mentor**—HOMES—Stanley Bach, 2201 Cedarview Dr., Cleveland, Zone 21, plans by Louis J. Rotman, 31715 Vine St., Wickliffe, 200 homes, Pinehurst-Forest Ave., $3,100,000. CD 12/10.

▲ **O., Troy**—HOMES—Mid Eastern Builders, Inc., 409 W. 2nd St., Dayton, 72 homes, Arlington subdivision, $1,650,000.

O., Warrensville Heights—APARTMENTS—Owner, c/o Teresi Builders, Inc., 16702 Miles Ave., Cleveland, Zone 28, 48 garden type apartments, Northfield Rd. between Emery and Ellacott Parkway, $500,000.

O., Willowick—BOWLING ALLEY—Shoregate Stores, 17903 St. Clair Ave., Cleveland, Zone 10, plans by Weinberg & Teare, Citizens Bldg., Cleveland, Zone 15, 48 lane bowling alley at Shoregate Shopping Center, $500,000.

Pa., Altoona—NURSING HOME—Catholic Charities, 1211 15 St., nursing home. $950,000.

▲ **Pa., Broomall**—SCHOOL—Roman Catholic Archdiocese of Phila., 225 N. 18 St., Phila., school for mentally retarded, swimming pool, gymnasium, Sproul Rd., Marple Twp. $1,500,000. Stickle & Assocs., 134 Narberth Ave., Narberth, Pa., archts.-consult. engrs. Bids in April.

▲ **Pa., Phila.**—SCIENCE and RESEARCH—Hahnemann Medical College & Hospital, 230 North Broad St., Zone 2, plans by Ballenger & Co., Broad and Race Sts., science and research bldg. $1,700,000; nurses home $1,700,000. Bids late 1960. CD 4/16/57.

▲ **Pa., Pittsburgh** — HOSPITAL — Montefiore Hospital, 3459 Fifth Ave., hospital. $5,500,000.

▲ **Pa., Pittsburgh**—HOSPITAL—University of Pittsburgh, 5th and Bigelow Blvd., hospital, $2,400,000.

▲ **Tex., Corpus Christi** — CHURCH — First Methodist Church Congregation, Shoreline and Furman St., plans by Smyth & Smyth, Gulf Securities Bldg., church, $1,000,000. A. Hensel Fink, 1701 Arch St., Phila., Pa., assoc. archt.

Tex., Dallas—STORE, etc.—A. Harris & Co., 1501 Main St., plans by Harold A. Berry, 423 S. Field St., 2 story, bsmnt., concrete frame, brick, steel Dept. Store, $500,000. Herman Blum, 4930 Maple Ave., and John A. Murlin, 6023 Azalea Lane, Dallas, consult. engrs. CD 8/3.

▲ **Tex., Garland**—DWELLINGS—Centennial Constr. Co., 11111 N. Central Expressway, Dallas, 30 dwellings, $450,000; 32 dwellings, $416,000; 27 dwellings,

(Continued on page 120)

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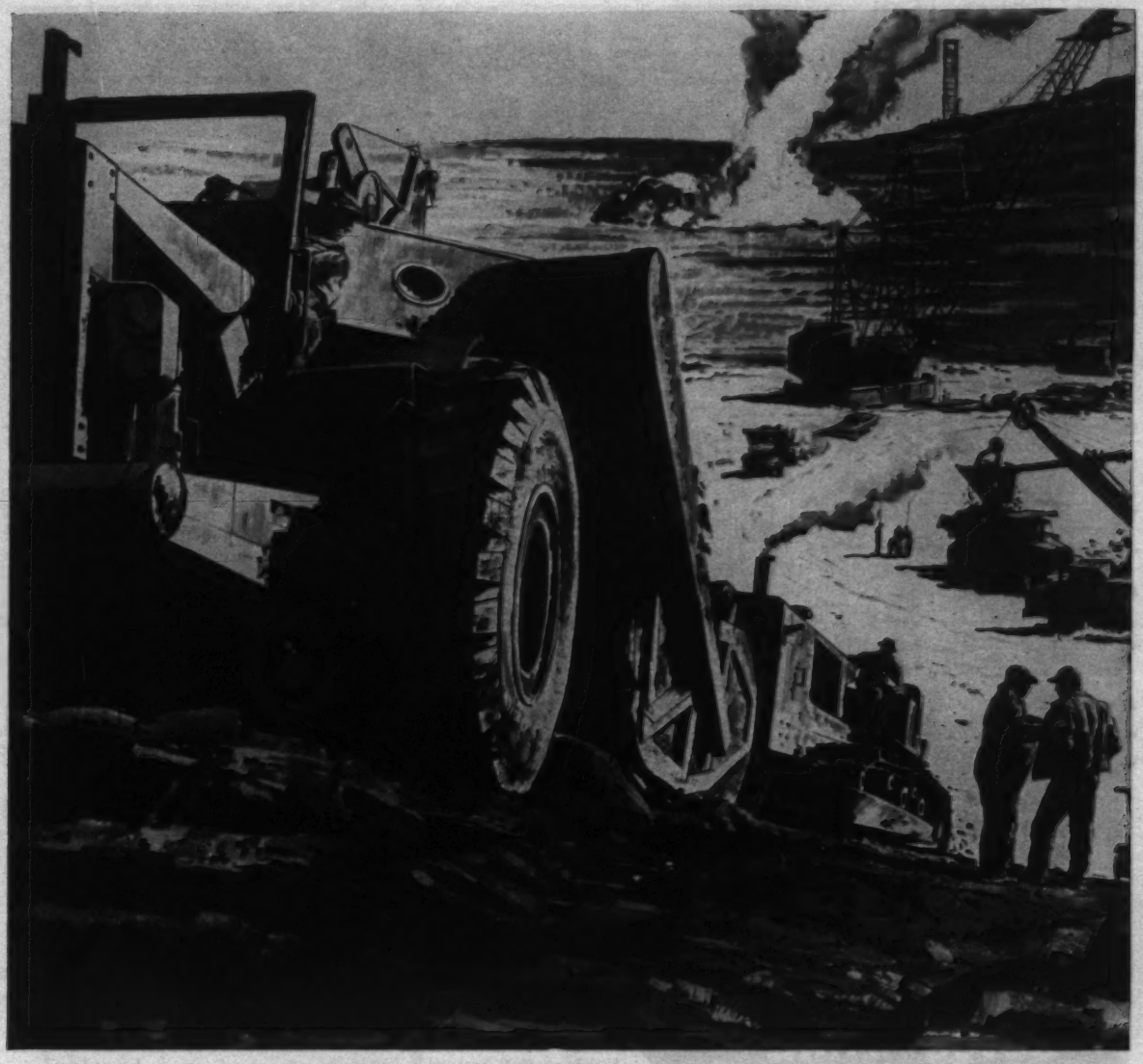

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(Continued from page 118)

$418,500; 30 dwellings, $405,000, "Enchanted Village" subdivision, Constr. 1960.

Tex., Houston—APARTMENT—Ducc Realty Co., Inc., 2111 Westheimer St., apartment, Long Point and Jacquelin Drive. $700,000.

▲ Tex., Houston—OFFICE—Kenneth Schnitzers Century Properties, 3509 N. Parkwood St., plans by Caudill, Rowlett & Scott, archts.-consult. engrs., 3400 Montrose Blvd Houston, office, Richmond Ave. at Edloe St. $1,300,000, Gulf Coast Engineers, and Brazos Oil & Gas Div. of Dow Chemical Co, lessees.

▲ Tex., Houston—PETROLEUM and TRADE CENTER, etc.—Wm. A. Smith, of Wm. A. Smith Constr. Co., 409 San Jacinto Bldg., plans by Lightfoot-Burleson & Associates, 4014 Mt. Vernon St., Petroleum and Trade Center, incl. 14 Bldgs., $7,000,000; area lighting, $90,000; paved area and auto center for 1,800 cars, $125,000; earthwork, $65,000; water sys., $55,000, 26½-acre site off Gulf Freeway, named "Petroleum Center, Inc." CD 4/4.

▲ Tex., Odessa—SHOPPING CENTER, etc.—Von Medlin & Co., Midland, plans by Wilson, Morris, Crain & Anderson Co., 3330 Graustark St., Houston, 260,000 sq. ft., air-conditioned, masonry, shopping center, 26-acre site, $2,700,000; hard-paved shop area and 2,000 auto center, $100,000; site earthwork, $62,500; drainage, $90,000, E. 42nd St. and Grandview Place.

▲ Tex., San Antonio—SHOPPING CENTER, etc.—Ridgell Keller, 1001 Waterford Dr., Dallas, shopping center, $750,000; apartment, $450,000; motel, $450,000; paved area and parking center, $100,000; tract earthwork, $59,000; water sys., $60,000, on large street across road from San Antonio State Hospital, and near Brooks Field.

Tex., Whitney—CLUB—Lake Whitney Country Club. Chas. Murray, club, $500,000.

▲ Va., Arlington — OFFICE — International Business Machines Corp., 590 Madison Ave., New York, N. Y., 3 story offices, Fairfax Dr. $1,000,000.

▲ Va., Bristol—SHOPPING CENTER—Southside Shopping Center, Inc., Blank St., plans by Anderson & Gilliam, Bristol, Va., shopping center, $1,250,000. CD 3/29.

Va., Emporia—HOSPITAL—Greensville Memorial Hospital, plans by Baskervil & Son, 2313 W. Cary St., Richmond, hospital, $750,000. Rankins & Anderson, 709 W. Grace, Richmond, consult. engrs. CD 10/22.

▲ Va., Franklin—HOSPITAL—Southampton Memorial Hospital, hospital west end of town, $2,500,000.

Va., Martinsville—BOWLING ALLEYS—Lanier Farm Inc., Martinsville, bowling alleys, $500,000.

Va., Princess Anne—HOSPITAL—Princess Anne Memorial Hospital Comn., hospital. $750,000.

Va., Richmond—SHOPPING CENTER—Laurel Park Shopping Center, Inc., 1013 E. Main St., shopping center near here. $650,000.

Va., Richmond—STORE—Thalhimers, Inc., 7th and Broad St., conversion service buildings, into retail store, Westmoreland St. $500,000.

▲ Va., Virginia Beach—HOSPITAL—Princess Anne Medical Center, Inc., hospital, $1,500,000; offices, $750,000; nursing home, $750,000.

Wash., Seattle—CLUB—Seattle Tennis Club, 922 McGilvra Blvd., club addn. $500,000. Constr. this summer.

▲ Alta., Calgary — OFFICE — British Pacific Building Ltd., 7th Ave. and 6th St. N.W., plans by Rule, Wynn & Rule, 525 12th Ave. S.W., 20 story east wing, Elveden House office, $4,000,000.

▲ Alta., Edmonton — OFFICE — Edmonton Professional Arts Building Ltd., c/o Gerald Hamilton & Assocs., archts., 1350 Pender St., Vancouver, B. C., 10 story office, glass penthouse, air conditioned, Jasper Ave. $3,000,000. Skakum & Naito, 306 Noble Bldg., Edmonton, supervisory archts. CD 10/21.

N. S., Kentville—HOSPITAL—Blanchard-Fraser Memorial Hospital, hospital expansion, $700,000.

▲ Ont., Port Colborne—SHOPPING PLAZA—Killaly Developments Ltd., c/o Herbert Katz, 391 Cortleigh Blvd., Toronto, concrete, masonry, steel, brick, glass shopping plaza, south side No. 3 Hy., Humberstone Twp. $1,200,000.

▲ Ont., Toronto—TELEVISION STATION—Baton Aldred Rogers Broadcasting Ltd., c/o Toronto Telegram, Bay and Melinda Sts., split-level type television studio incl. headquarters and studios, McCowan Rd., $1,000,000.

Ont., Toronto—APARTMENT—1680 Gerrard St. East Ltd., c/o Saul Watter, 201 Armour Blvd., Downsview, apartment, 1680 Gerrard St. E. $560,000.

▲ Ont., Toronto—MOTEL, etc.—Leonard Papple, 485 MacDonald Rd., Oakville, motel, restaurant and service station, Kerr St. and Queen Elizabeth Way, $1,000,000. Duncan Hopper & Assocs., Ltd., 1593 Wilson Ave., Downsview, consult. engrs.

Ont., Toronto—HOME—Pentecostal Assemblies of Canada, 50 Euston St., Senior Citizens Home, Sheppard Ave. $700,000.

▲ Ont., Toronto—TRAINING SCHOOL—The Salvation Army, 37 Dundas St. E., 2 story training school, central church-auditorium, Bayview Ave. $1,500,000.

Ont., Toronto—APARTMENT—Worthington Investments Ltd., 1 Tichester Rd., plans by Georges Jarosz, 1949 Eglinton Ave. W., apartment, Spencer Ave. $640,000.

Que., Montreal—APARTMENT—Black & White Realty Co., c/o David Reich, archt., 5810 Cote St. Luc Rd., 13 story apartment, Fort St. $600,000.

Que., Montreal—MEDICAL SCIENCE—Bd. Governors, McGill University, Sherbrooke St. W., plans by Barott, Marshall, Merrett & Barrott, 1425 Mountain St., medical science, Drummond St. Over $500,000. CD 5/31/56.

▲ Que., Montreal—CONCERT HALL—Sir George Etienne Cartier Corp., 117 St. Catherine St. W., plans by Affleck, Desbarats, Dimakopoulos, Lebensold, Michaud, Sise, 1010 St. Catherine St. W., concert hall, St. Catherine St. W. $6,000,000. Brouillet & Carmel, 3600 Barclay St., consult. engrs. CD 5/14.

▲ Que., Montreal—APARTMENT—Stanfold Investments Co., c/o David Reich, archt., 5810 Cote St. Luc Rd., 17 story apartment, Cote des Neiges Rd. and Seaforth Ave. $1,500,000.

Que., Rimouski—HOUSING—LaConstruction Notre Dame Inc., c/o Fernando Belanger, 105 4th Ave., brick, concrete housing, Parish Notre Dame du Sacre Coeur, $600,000.

INDUSTRIAL BUILDINGS

Fla., Largo — FACTORY ADDN. — General Electric Co., Pinellas Peninsula Plant, Bryan Dairy Rd., plans by Pullara & Watson, archts.-consult. engrs., 2910 Grand Central Ave., Tampa, 32,000 sq. ft. factory, office to laboratory and engineering facilities. $500,000.

▲ Fla., Miami—WAREHOUSE, etc.—Modernage Furniture Corp., 7255 N.E. 4 Ave., plans by Giller, Payne & Waxman, 4100 N. Miami Ave., 2 story, 300 x 750 CB-S warehouse and offices, N.W. 167 St. and N.W. 13 Ave. $2,000,000.

Fla., Palm Bay—PLANT—Soroban Engineering, Inc., Box 938, Melbourne, 50,000 sq. ft. electronic mfg. plant, Port Malabar Industrial Park, Highway 1. $750,000.

▲ Ill., Chicago—TERMINAL—Cooper-Jarrett, Inc., 2113 W. 83 St., motor freight terminal, 95 and S. Harlem Ave. $1,000,000.

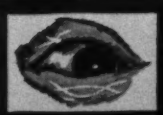
Ill., Des Plaines—FACTORY—Illinois Tool Works, 2501 N. Keeler Ave., Chicago, machine tools factory addn., Oakton St. and Mount Prospect Rd. $700,000. Bids Spring 1960.

Ind., Fort Wayne—PLANT—Wabash Fibre Box Co., 2000 N. 19 St., Terre Haute, plant. $500,000.

▲ La., Lake Charles—GASOLINE PLANT—Continental Oil Co., 1300 Main St., Houston, Tex., natural gasoline plant addn. $2,000,000.

▲ Neb., Omaha—TRUCK SALES AND SERVICE PARTS DEPOT—Mack Truck Co., Empire State Bldg., 350 5 St., New York 1, N. Y., 1 story, masonry truck sales and service parts depot, 5.6 acre tract at 72 and L Sts. $1,000,000. Lester M. Entin Assocs., 30 Howe Ave., Passaic, N. J., consult. engrs.

(Continued on page 122)



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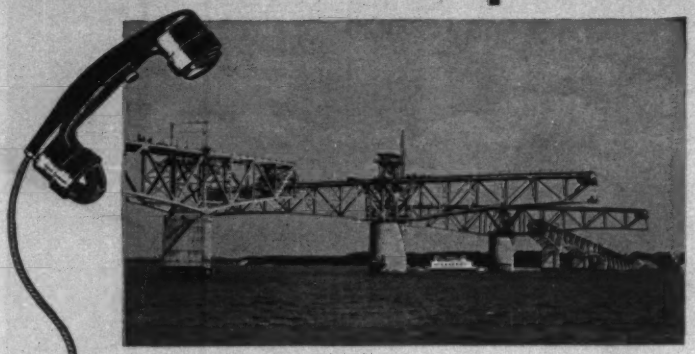

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(Continued from page 120)

▲ **N. J., Edison**—PLANT—National Can Co., 52-08 Grand Ave., Maspeth, N. Y., 150,000 sq. ft. plant on land adjoining Pennsylvania Railroad. $2,000,000.

N. J., Flemington—MILL—Union Steel Corp., Old New Brunswick Rd., New Market, mill, off Rte. 22. $500,000. Contr. in 1960.

N. J., Garfield—PLANT—Farmland-Fair Lawn Dairies, 5-01 River Rd., Fair Lawn, plant, River Dr. $500,000.

N. J., Hampton — FABRICATING MILL — Union Steel Corp., Old New Brunswick Rd., New Market, steel fabricating mill. $500,000. Not for immediate construction.

▲ **N. J., Holmdel**—PLANT—Blonder-Tongue Laboratories, Inc., 9 Alling St., Newark, 50,000 sq. ft. plant, Rte. 35. $1,000,000.

▲ **N. J., Princeton**—PLANT—Lockheed Electronics Co., U. S. Highway 22, Watchung, plant, Rte. 1, New Windsor Twp. Over $2,000,000.

N. Y., Corona—SUB STATION EXTENSIONS—Consolidated Edison Co., 4 Irving Pl., New York, N. Y., sub station extensions. $500,000. Gibbs & Hill, Inc., Penn Station, New York 1, N. Y., consult. engr. CD 12/2/54.

▲ **N. Y., Long Island City**—POWER PLANT—Consolidated Edison Co., 4 Irving Pl., New York Zone 3, two 375,000 kw. power plant, Ravenswood.

N. Y., White Plains—SUB STATION—Consolidated Edison Co., 4 Irving Pl., New York, sub station addn. $500,000. Gibbs & Hill, Inc., Penn Station, New York, Zone 1, engr.

O., Cleveland—PLANT—Cuyahoga Lime Co., c/o Minerals & Chemical Corp., Menlo Park, N. J., metallurgical lime plant, 1022 Belt Line Ave. Over $500,000. Bids soon.

▲ **O., Cleveland**—PLANT—World Publishing Co., 2231 W. 110th St., Zone 11, 75,000 sq. ft. plant, East side.

▲ **S. C., Ninety-Six**—MILL—Greenwood Mills, Inc., Greenwood, textile mill. $6,000,000.

▲ **Tex., Houston**—MILL—Sheffield Steel Div. of Armco Steel Corp., Industrial Rd., plate-making mill, $6,000,000, CD 3/1/57.

Tex., Houston—PLANT—Percy Smidth Interests, State National Bldg., plant. $750,000. Modern Optics, 4001 Bellaire Blvd., lessee.

Wash., Tacoma—PARKING GARAGE—Rhodes of Tacoma, 950 Broadway, rein.-con. parking garage, $850,000. Bids about May 1. N. G. Jacobson, Jr. & Assocs., 11726 Aurora Ave., Seattle, consult. engrs.

Wis., Oshkosh—FACTORY—Standard Coil Products Co., 2089 N. Hawthorne St., Melrose Park, Ill., plans by Irion-Reinke, 805 N. Main St., 1 story, 200 x 300 ft. factory. $500,000. CD 4/4.

▲ **N. S., Dartmouth**—MARINE TERMINAL—Texaco Canada Ltd., 1425 Mountain Ave., Montreal 25, Que., Marine Terminal at Eastern Passage, $1,750,000.

▲ **Que., Tracy**—PLANT—British Titan Products Co. (British Titan Products Co. of Canada Ltd.) 10 Stratton St., London, England, tioxide producing plant, $15,000,000.

▲ **Sask., Regina**—BREWHOUSE—Molson Regina Brewery Ltd. plans by R. Wohleb & Assocs., 715 S. Washington St., Olympia, Wash., and Rule, Wynn & Rule, 526 12th Ave. S.W., Calgary, Alta., brewhouse. $1,000,000. Constr. in Summer.

UNCLASSIFIED

▲ **Calif., San Diego**—PORT DEVELOPMENT—City, Civic Center, $3,600,000 bond election June 7, port development. CD 4/25/55.

Ill., Casey—GAS SYSTEM—Village, Village Hall, voted $650,000 bonds Mar. 3, municipal gas system. CD 2/15.

N. H., Hanover — FIELD HOUSE — Dartmouth College, Hanover, plans by Eggers & Higgins, 100 E. 42 St., New York, N. Y., field house. $500,000. Constr. in 1960.

▲ **S. D., Sioux Falls**—FIELD HOUSE—City, City Hall, plans by Harold Spitzanagel & Assocs., 1800 S. Summit St., 256.6 x 280 ft. octogon tile, concrete 68 ft. steel arch roof fieldhouse. $1,400,000. Bids about June 1. CD 4/29/59.

▲ **Manitoba** — COMPRESSOR STATION — Trans-Canada Pipe Lines Ltd., 150 Eglinton Ave. E., Toronto, Ont., compressor station for natural gas pipe line, Portage la Prairie, $1,000,000; compressor station for natural gas pipe line, Forrest, $1,000,000.

▲ **Ontario**—COMPRESSOR STATION—Northern Ontario Pipe Line Crown Corp., No. 4 Bldg., 56 Lyon St., Ottawa, compressor station for natural gas pipe line. $1,000,000.

▲ **Ontario**—COMPRESSOR STATION—Trans-Canada Pipe Lines Ltd., 150 Eglinton Ave. E., Toronto, compressor station for natural gas pipe line, Ramore. $1,000,000.

▲ **Que., Montreal**—RECREATION CENTRE—City, City Hall, revised plans by Gerrard Masson, City Hall, recreation centre, Marquette Park, Marquette and Bellechasse Sts. $1,270,000. CD 12/1/58, under LB.

▲ **Que., Montreal**—TELEVISION STUDIOS, etc.—Canadian Marconi Co. 2442 Trenton Ave., Mount Royal, plans by Paul H. Lapointe, 3534 Cote des Neiges Rd., television studios, offices, workshops, Park Ave. and Jean Talon St. $3,000,000. Brouillet & Carmel, 3600 Barclay Ave. consult. engr CD 3/30.

HOT-HOUSE FRAMED BY COLD-BENT BEAMS—The largest and longest structural sections ever cold-bent from mill beams support the roof of the reconstructed Palm House of Chicago's Garfield Park Conservatory.

Johnston Iron Works, Chicago, used 21" WF 62 lb. beams cold-bent by COMMERCIAL to a radius of 50'. The contractor estimated that cold-bending of these 82' wide - 50' high arches saved 60% over conventional fabricating methods.

ARCHED CANOPIES FOR LOADING DOCKS—Central Division Headquarters, Northern Illinois Gas Company, Bellwood, Ill. Graham, Anderson, Probst & White, Architects and Engineers, specified 8" WF beams for roof-deck canopy support. Beams were cold-bent by COMMERCIAL and varied in weight from 24 to 40 plf. Accurate forming of beams by progressive bending to a 42' radius made the rise 1' 10" on a 24' span.

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ULTRAMODERN SCHOOL DESIGN—10" WF beams @ 31#/ft. and 29#/ft. were cold-bent by COMMERCIAL to varying radii 28 to 35'. These structurals are the load bearing members of the roof framing for the cafeteria and the diving pool of the new Lincoln Park High School, Lincoln Park, Michigan. To span varying widths up to 46' individual members were cold-bent to as many as 3 different radii. Eberle M. Smith Associates, Inc., Detroit, were the architects —Congress Steel Products, the structural contractor.

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Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

STREETS AND ROADS

April 26 Massachusetts — April 27 Maine
May 6 Vermont

BUILDINGS—BA

Conn., Stamford—MOTEL—BA 5/4—Roger Smith Hotels Corp., 55 River St., 2 story fireproof masonry motel Roger Smith Motor Inn, River St. $800,000. Plans deposit $25. Gertrude S. Burbank, Boston Neck Rd., Suffield, archt. Fred S. Dubin Assocs., 635 Farmington Ave., Hartford, engrs. CD 11/18.

HEAVY CONSTRUCTION—LB & CA

▲ **CONNECTICUT**—State Hy. Dpt., 170 Douglas St., Hartford, Bids opened 4/11,

Conn.—L. G. Defelice & Son, Inc., Nettleton Ave., North Haven, Conn., LB $3,313,874, (12 bidders), 14,518 ft. dual lane concrete pavement relocation Rte. 8 incl. 25-span bridge over Rte. 67 Fed. Aid Proj. U-47-(90) Proj. 124-94 Seymour;

Conn.—White Oak Excavators, Inc., 61 East Main St., Plainville, Conn., LB $1,035,241, (11 bidders), 15,747 ft. hot b. conc. pavement Rte. 4 and connector Rte. U. S. 44, incl. 4-span plate girder bridge over Farmington River Bypassing Nepaug Dam, Fed. Aid Proj. F (38) Proj. 91-79, Canton. CD 3/22.

BUILDINGS—LB & CA

▲ **Wexler Constr. Co., Inc.**, 118 Needham St., Newton Highland, Mass., LB $1,299,500, DORMITORIES, Proj. NH27-CH6(D), Group 2, HANOVER, N. H., Trustees Dartmouth College, Hanover, N. H. Bids Apr. 12. CD 3/22.

▲ **Joseph Rugo, Inc.**, 115 Homes Ave., Dorchester, Mass., CA $1,447,000, U-5711 Contr. No. 2, SCIENCE BLDG., Third Section, University of Massachusetts, AMHERST, MASS. Commonwealth of Mass., Dpt. Educ., c/o Div. Bldg. Constr., 38 Chauncy St., Boston, Mass. Bids Mar. 11. CD 3/15, under LB.

▲ **Middlesex Homes, Inc.**, 1 Russell St., Woburn, Mass., Owner Builds, $1,350,000, 75 HOUSES "Woodvale" Rte. 62 Section 2D, DANVERS, MASS.

▲ **Ley Constr. Co.**, 124 State St., Springfield, Mass., LB Approx. $1,500,000, U. S. POST OFFICE, Tapley Annex, 70 Tapley St., SPRINGFIELD, MASS. Samuel Poorvu, 207 Washington St., Boston, Mass. U. S. Post Office, Dpt. Real Estate, Boston, Mass., lessee. Arthur Winebaum, 316 Stuart St., Boston, Mass., archt. CD 2/4.

▲ **Cerel-Perini Assoc., Inc.**, 18 E. Central St., Natick, Mass., Owner Builds, Approx. $1,000,000, 2 INDUSTRIAL PARKS, Pleasant St., WATERTOWN, MASS.

▲ **George E. Emerson, Inc.**, 34 Britton St., Pittsfield, Mass., CA $1,726,325, est. $1,700,000, Mount Greylock REGIONAL HIGH SCHOOL, Rte. 7, South Section, South Williamstown, WILLIAMSTOWN, MASS. Greylock Regional High School, Bldg. Comn., Grant School, School St., Williamstown, Mass. Bids Mar. 23, awarded Apr. 4. CD 3/25, under LB.

▲ **Walter F. Molsick & Son, Inc.**, New Haven Rd., Seymour, Conn., Owner Builds, $1,080,000, 108 HOUSES, Eleanor Rd., SEYMOUR, CONN. CD 8/21/58.

▲ **John J. Bennett, Inc.**, Ridgewood Rd., Wallingford, Conn., Owner Builds, $1,119,250, 75 HOUSES "Pond Hill Estates", Second Section, WALLINGFORD, CONN.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

May 12 New York — May 13 Pennsylvania

STREETS AND ROADS

April 27, May 5 New Jersey — May 12 New York
May 13 Pennsylvania

▲ **D. C., Wash.**—STADIUM—BA 5/18—Procurement Officer D. C. National Guard Armory, 2001 E. Capitol St., 50,000 seat stadium west end of E. Capitol St. Bridge, east of Armory, Plans deposit $200. Praeger-Kavanagh, 126 E. 38 St., Waterbury 16, N. Y., Osborne Co., 7016 Euclid Ave., Cleveland, O., George Dahl, 2101 N. St. Paul St., Dallas, Tex., and Ewin Engineering Corp., 1367 Connecticut Ave., N. W., Wash., D. C., archts.-engrs. CD 5/26.

HEAVY CONSTRUCTION—LB & CA

▲ **Spearin, Preston & Burrows, Inc.**, 50 Church St., New York 7, N. Y., CA $5,117,407, Contr. 6, plant outfall, Newtown Creek Pollution Control Project, Brooklyn Boro, BROOKLYN, N. Y. Dpt. P. Wks., Rm. 2200, Municipal Bldg., New York 7, N. Y. Bids Feb. 10. CD 2/17, under LB.

▲ **Ralph Tomasetti & Co.**, 1163 58th St., Brooklyn 19, N. Y., CA $2,026,029, combined relief sewers in 17th Ave. from 50th St. to Dahill Rd. in Dahill Rd. from Cortelyou Rd. to Avenue F and in 42nd St. from 17th Ave. to Dahill Rd., combined sewer in 39th St. from 16th Ave. to Dahill Rd. and high level combined lateral sewers in sw side 17th Ave. from 50th St. to 42nd St. in ne side of 17th Ave. from 50th St. to point about 20 ft. north of 49th St.; from 48th St. to 46th St. from 45th St. to point about 125 ft. northeasterly and from 44th St. to 42nd St. in westerly side of Dahill Rd. from 17th Ave. to 38th St. and in easterly side of Dahill Rd. from Avenue F to Cortelyou Rd., Brooklyn Boro, BROOKLYN, N. Y. President Brooklyn Boro, Rm. 21, Boro Hall, Brooklyn 1, N. Y. Bids Mar. 11. CD 3/16, under LB.

▲ **Carl E. Widdell & Son**, Merchantville, N. J., CA $1,689,100, 12 m.g. filtration plant, tanks, filter beds, etc., POUGHKEEPSIE, N. Y. Dpt. P. Wks., City Hall, Poughkeepsie, N. Y. Bids Feb. 23. CD 2/29, under LB.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 North Office Bldg., Harrisburg,

Ralph Myers Contg. Co., Box 125, Pitcairn, Pa., CA $2,789,765, 4,900 ft. divided hy. rein.-con. 36 ft. wide each side divisor, 3 bridges, T.R. U. S. 22 Interstate Rte. 70, Monroeville Boro and Penn Twp., Allegheny Co., Bids Mar. 24, awarded Apr. 8, CD 3/29, under LB.

▲ **Empire Constr. Co.**, 31 S. Calvert St., Baltimore 2, Md., CA $1,908,666, rehabilitation bulkhead and related work at Harbor Field, Contr. MPA E 60-1, BALTIMORE, MD. Maryland Port Authority, Pier 2, Pratt St., Baltimore, Md. Bids Apr. 6. CD 4/7, under LB.

BUILDINGS—LB & CA

▲ **Leon D. DeMatteis Constr. Co.**, 827 Elmont Rd., Elmont, N. Y., CA $2,850,000, general contract ACADEMIC BLDG., Queens College, FLUSHING, N. Y. Bd. Higher Educ., Queens College Business Office, Bldg. H, Rm. 204, 65-30 Kissena Blvd., Flushing 67, N. Y. Bids Feb. 9. CD 2/11, under LB.;

A. F. Smith Electrical Contractors, Inc., 1518 East New York Ave., Brooklyn 12, N. Y., CA $578,880, electrical work for Academic Bldg., Queens College (Flushing, N. Y.).

▲ **Bernard Assocs.**, 2 Lawson Ave., East Rockaway, N. Y., CA $1,233,100, HIGH SCHOOL, MILLBROOK, N. Y. Central School Dist., Franklin Ave., Millbrook, N. Y. Bids Mar. 22, CD 3/18;

Velletri Contg. Co., 26 Van Wagner Rd., Poughkeepsie, N. Y., CA $412,500, ELEMENTARY SCHOOL (Millbrook, N. Y.).

▲ **Diesel Constr. Co.**, 24 W. 58th St., New York 19, N. Y., CA Est. $2,800,000, 19 story APARTMENT, East End Ave., NEW YORK, N. Y. Vine Realty Corp. & Alto Investing Corp., 119 W. 40th St., New York 19, N. Y. Richard Roth, 400 Park Ave., New York 22, N. Y., archt. CD 11/13.

▲ **Diesel Constr. Co.**, 24 W. 58th St., New York 19, N. Y., CA Est. $3,896,000, converting 17 story Apartment at 280-290 Park Ave. SW corner 49th St. into 22 story OFFICE, NEW YORK, N. Y. David Rose & Assocs., Inc., 340 W. 58th St., New York 19, N. Y. Emery Roth & Sons, 575 Madison Ave., New York 22, N. Y., archts. CD 3/4/58.

▲ **H R H Constr. Co.**, 579 Fifth Ave., New York 17, N. Y., CA $14,943,000, 19 story HOSPITAL, East 33rd St. and First Ave., NEW YORK, N. Y. New York University-Bellevue Medical Center, 550 First Ave., New York 16, N. Y. Bids Mar. 15. CD 3/18, under LB.

▲ **Wilaka Constr. Co., Inc.**, 31 E. 44th St., New York 17, N. Y., CA $1,491,000, Proj. NYS-94, AUDUBON HOUSES, W. 154th St., West 155th St. and Amsterdam Ave., Manhattan Boro, NEW YORK, N. Y. New York City Housing Auth., 299 Broadway, New York 7, N. Y. Bids Mar. 22. CD 3/24, under LB.

▲ **Leon D. DeMatteis Constr. Co.**, 827 Elmont Rd., Elmont, N. Y., CA $1,700,000, St. Francis HOSPITAL addn., PORT JERVIS, N. Y. Archdiocesan Bldg. Comn., 451 Madison Ave., New York 22, N. Y. Bids Feb. 11. CD 1/26.

▲ **Cuzzi Bros. & Singer, Inc.**, 10 South Second Ave., Mount Vernon, N. Y., CA Est. $1,000,000, 1 and 2 story, 44,500 sq. ft. steel frame EXECUTIVE OFFICE, Mamaroneck Ave., WHITE PLAINS, N. Y. Picker X-Ray Corp., 25 South Broadway, White Plains, N. Y. Bids Mar. 24. CD 3/3.

▲ **V. B. Constr. Co.**, 157 Somerfield St., Scarsdale, N. Y., CA $1,915,400, general contract The CORNER SCHOOL and Yorktown HIGH SCHOOL, YORKTOWN HEIGHTS, N. Y. Bd. Educ., Central School Dist. No. 2, Towns of Yorktown, New Castle and Cortlandt, Westchester Co., Yorktown Heights, N. Y. Bids Mar. 1. CD 2/10.

Michael Riesz & Co., Inc., 871 King George Rd., Fords, N. J., LB $820,000, general contract HIGH SCHOOL, Cedar Hill, Bernards Twp., BASKING RIDGE, N. J., Bd. Educ., Oak St. School, Basking Ridge, N. J., Bids Apr. 5. CD 3/16.

▲ **Segal Bros. Constr. Co.**, Essex Rd., Maplewood, N. J., Owner Builds, $2,750,000, 131 HOUSES, Plainfield Ave., EDISON TWP., N. J. Herman York, 90-04 161 St., Jamaica, N. Y., archt.

▲ **Kramer & Sanzari**, c/o Berg Agency, 12 Center St., Metuchen, N. J., Owner Builds, $1,000,000, 50 HOUSES, Terrill Rd., PLAINFIELD, N. J. Rudolph Novak, 89 Central Ave., Clifton, N. J., archt.

▲ **Arbee Constr. Co.**, Highway 23, Clifton, N. J., Owner Builds, $1,600,000, 85 HOUSES, Zengel farm, 8th St., SECAUCUS, N. J.

▲ **Turner Constr. Co.**, 150 E. 42 St., New York, N. Y., CA Approx. $1,000,000, 410 x 525 ft. WAREHOUSE, 60 x 104 ft. SERVICE BLDG., 5th St., SECAUCUS, N. J. Merchants Refrigerating Co., 17 Varick St., New York, N. Y. CD 1/23.

▲ **Arthur & Ernest Delamo**, General Delivery, Netcong, N. J., Owner Builds, $3,500,000, 200 HOUSES, Ledgewood Circle, STANHOPE, N. J. Eugene Reilly, First Natl. Bank Bldg., Washington, N. J., and Robert Berg, 235 Riverside Dr., Denville, N. J., archts.

▲ **Baton Constr. Co., Corp.**, 1717 Sansom St., Phila., Pa., CA Est. $3,000,000, MFG. PLANT and OFFICE, LANGHORNE, PA. Strick Trailer Co., Whitaker and Godfrey Ave., Phila. Pa., Bids Mar. 1. CD 2/11.

▲ **B. Bornstein & Son.**, 2027 Arch St., Phila., Pa., CA $2,319,500, mens DORMITORY, PHILA., PA. Temple University, Broad and Berks Sts., Phila., Pa. CD 2/24, under LB.

▲ **Weakley Builders**, 122 Warner Rd., King of Prussia, Pa., Separate Contracts, $1,840,000, 115 RESIDENTIAL DEVELOPMENT, Crooked Lane, etc., KING OF PRUSSIA, PA.

Philip Vizzini, Inc., 818 N. Franklintown Rd., Baltimore 16, Md., LB $949,400, 1 and 2 story, brick, concrete, steel block Bentalou Park ELEMENTARY SCHOOL, Bentalou and Saratoga Sts., BALTIMORE, MD. City, Bureau Bldg. Constr., 410 Municipal Bldg., Baltimore 2, Md. Bids Apr. 6. CD 3/24.

▲ **Milton Polinger & A. Becker**, 8500 New Hampshire Ave., Silver Spring, Md., Owner Builds, $2,800,000, (first section) APARTMENT, Rockville Pike, Jefferson St., ROCKVILLE, MD. J. Cohen, 7961 Eastern Ave., Silver Spring, Md., archt.

▲ **Cafritz Co.**, 1625 Eye St. N.W., Wash., D. C., Owner Builds, $1,608,000, 268 unit APARTMENT Parkland addn., Shipley Terrace and Savannah Sts. S.E., WASH., D.C. Leroy Werner, 1625 Eye St., N.W., Wash., D. C., archt.

SOUTH

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

April 26 West Virginia — April 28 Florida

STREETS AND ROADS

April 28 Florida — May 6 Kentucky
May 11 Virginia

BUILDINGS—BA

▲† **Fla., Key West**—HOUSING—BA 4/29—Dist. P. Wks., Sixth Naval Dist., Bldg. No. 13, Naval Base, Charleston, S. C., Capehart Family Housing, U.S. Naval Base, Contract No. N8y (CH)-29105 FHA Proj. No. 066-81013 NAVY 1, No. 29105/60. Extended date. CD 3/16.

▲† **Va., Fort Eustis**—HOUSING—BA 5/18—U. S. Eng., foot of Front St., Norfolk, 223 unit Capehart family housing, ENG-44-110-60-18, $3,495,000. Plans deposit $10. CD 9/29/58.

▲† **Tenn., Oak Ridge**—RADIATION LEVEL EXAMINATION LABORATORY—BA About 5/24—Atomic Energy Comn., P. O. Box E, 2 story, rein.-con., frame structure 105 x 122 ft. high radiation level examination laboratory Bldg. 3525, Oak Ridge National Laboratory Area, Roane Co., INV. No. 401-60-15A. Plans deposit $70. CD 5/20.

HEAVY CONSTRUCTION—LB & CA

▲ **WEST VIRGINIA** — State Road Comn., Charleston, Zone 5,

Haynes Constr. Co., P.O. Box 1497, Bluefield, W. Va., CA $1,617,043, c. conc. paving 5.353 mi. Interstate Hy. 77 from Goldtown to Kenna Interchange, Proj. I-77-3(23) 120, Jackson Co. Bids Apr. 5. CD 4/8, under LB.

FLORIDA—State Hy. Dpt., Tallahassee,

Capeletti Bros. & Joe Daniel, Inc., Box 1147, Hialeah, Fla., CA $803,842, 4-lane divided roadway facility, Type 1, b. conc. surf. course and binder course 0.774 mi. SR 25, State Proj. Job No. 87090-3507, Dade Co. Bids Dec. 15. CD 11/24, under LB.

▲ **LOUISIANA**—State Hy. Dpt., Rm. 426, Headquarters Administration Bldg., Baton Rouge,

La.—Barnhill Bros., Inc. & C. E. Williams Constr. Co., Box 487, Many, La., CA $925,400, c. conc. 3.082 mi. Summer Grove-Shreveport Hy., Rte. 171, SP 25-08-20, Fed. 68-(19), Caddo Parish. CD 3/23, under LB;

La.—L. H. Bossier, Inc., Box 1870, Alexandria, La., CA $1,081,578, c. conc. 6.045 mi. Rte. 165, SP 15-31-02 Fed. 417(2), Ouachita Parish;

La.—T. L. James & Co., Inc., Box 531, Ruston, La., CA $660,349, blt. hot mix for hot application 11.744 mi. Rte. 82, SP 384-01-02 Fed. S-523 (2), Cameron Parish;

La.—W. R. Aldrich & Co., Box 1751, Baton Rouge, La., CA $1,168,790, grading, drainage structures, 2.764 mi. Lake Charles Expressway, Rte. 1-10 & 90, SP 740-00-4 & 3-04-39, Fed. 1-10 11-28 & U-35 (22), Calcasieu Parish. CD 3/21, under LB. Grand total $3,836,117. Bids Mar. 16.

▲ **KENTUCKY**—Commonwealth of Ky., Dpt. Hys., Frankfort, Bids opened 4/8,

Ky.—Kelly Contg. Co., Inc., 317 Wallace Ave., St. Matthews, Ky., LB $1,429,469, (15 bidders), c. conc. 6.192 mi. Louisville-Lexington Rd. I 64-2 (6) 17, Jefferson and Shelby Counties; LB $1,651,362, (16 bidders), c. conc. 6.208 mi. Louisville-Lexington. I 64-2 (4) 24, Shelby Co.;

Ky.—C. D. Juett Contractor, 417 S. Maple St., Winchester, Ky., LB $1,373,645, (12 bidders), traffic

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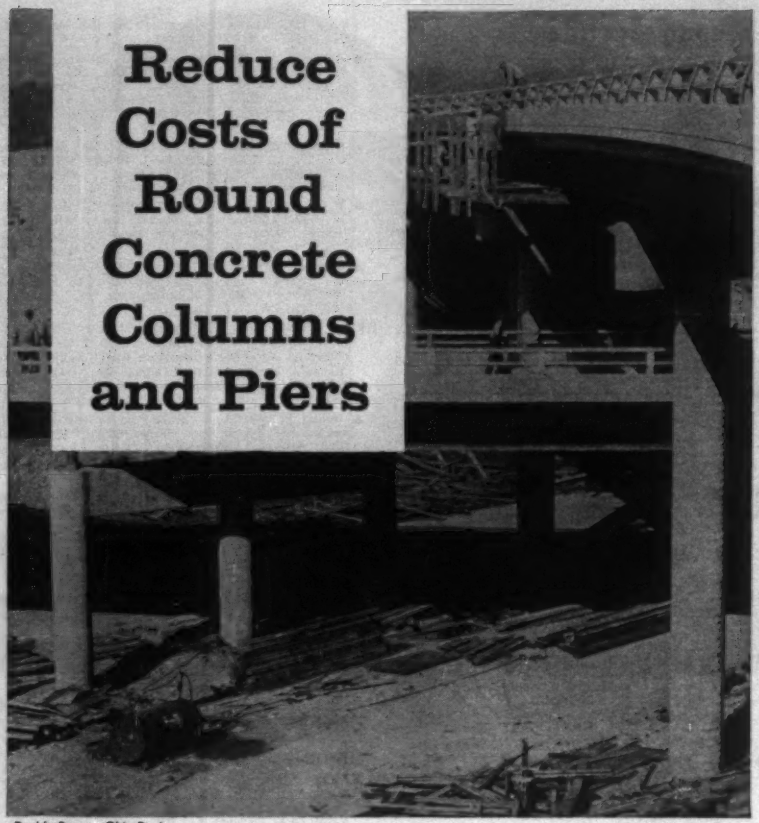

Double Ramp—Ohio Rt. 4 over U.S. 25 at Dayton, O. Contractor: Maxon Construction Co., Dayton. Engineer: Howard Needles Tammen & Bergendoff, Kansas City, Mo.

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bound surf. 6.891 mi. Jackson-Campton, F 102(2), Breathitt Co. CD 3/16.

BUILDINGS—LB & CA

Hunt Constr. Co., 3505 Roxboro Rd., Durham, N. C., LB $939,800, general contract three 149-bed COTTAGES, Murdoch School, BUTNER, N. C. North Carolina Hospitals Bd. Control, Revenue Bldg., Raleigh, N. C. CD 1/7.

McDevitt & Street Co., Builders Bldg., Charlotte, N. C., CA $993,000, ACADEMIC AND UTILITY STRUCTURES, LAURINBURG, N. C. Consolidated Presbyterian College, Laurinburg, N. C. Bids Mar. 29. CD 4/5, under LB.

▲ Wagoner Constr. Co., 1311 Blair St., Salisbury, N. C., CA Est. $1,000,000, 140,000 sq. ft. MFG. PLANT, MOCKSVILLE, N. C. Masland Duraleather Co., Inc., Amber and Willard Sts., Phila. Pa. Bids Mar. 29. CD 3/25.

▲ Ebasco Services, Inc., 2 Rector St., New York, N. Y., CA Plant 2, $30,000,000; Plant 3, $30,000,000, 2 POWER PLANTS, PORT EVERGLADES, FLA. Florida Power & Light Co., Ingraham Bldg., 25 SE 2 Ave., Miami, Fla. CD 12/11/58.

▲ Hudson Engineering Corp., 2711 Danville St., Houston, Tex., CA Est. $2,000,000, NATURAL GASOLINE PLANT expansion, LAKE CHARLES, LA. Continental Oil Co., 300 Main St., Houston, Tex. CD 4/7.

▲ State University, Rm. 204, Admin. Bldg., Lakefront, New Orleans, La., rejected bids Mar. 24, 3 story, partial bsmnt., 91,400 sq. ft., rein.-con. frame, brick, marble and steel CLASSROOM on Campus of Louisiana State University, NEW ORLEANS, LA. LB $1,884,000. Will re-advertise. CD 3/30, under LB.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

April 27 Michigan

STREETS AND ROADS

April 27 Michigan — May 5 Indiana

▲ Wis., Milwaukee—BA 5/26—City, City Hall, general constr. for Howard Ave. purification plant, $2,500,000. Plans deposit $25. Black & Veatch, 4706 Broadway, Kansas City, Mo., engrs. E. A. Schmidt, c/o owner, city engr. CD 5/12/58.

BUILDINGS—BA

▲ Ind., Valparaiso—HOSPITAL—BA 5/15—Porter Co. County Bldg., 85-bed Porter County Memorial Hospital addn. $1,440,000. Schmidt, Garden & Erickson, 104 S. Michigan Ave., Chicago 3, Ill., archts. CD 9/11.

HEAVY CONSTRUCTION—LB & CA

▲ Raymond International, Inc., 111 W. Monroe St., Chicago, Ill., LB $1,873,775, est. $800,000 (5 bidders), No. 80.78-60-2, Stage 4, extend, widen Navy Pier South Dock, CHICAGO, ILL. Dpt. Purchases, City Hall, Chicago 2, Ill. Bids Apr. 8. CD 3/23.

Santucci Constr. Co., 5025 Church St., Skokie, Ill., LB $895,589, 108,900 ft. 72 and 78 in. Cook St. Relief Sewers, SPRINGFIELD, ILL. City, City Hall, Springfield, Ill. Bids Mar. 29. CD 1/29.

BUILDINGS—LB & CA

▲ Castle Homes, Inc., 1170 Sutherland St., Akron, O. Owner Builds, $1,250,000, 70 HOMES, Castel Village Development, off E. Tallmadge Ave., near Brittain Rd., AKRON, O.

▲ Kenny Constr. Co., 12222 Lorain Ave., Cleveland 11, O., Own Forces, $1,260,000, 60 HOMES, W. 98th St., BROOKLYN, O. Louis J. Rotman, 31715 Vine St. Wickliffe, O., archt. CD 3/14.

Sam W. Emerson Co. 1836 Euclid Ave., Cleveland 15, O. CA Est. $975,000 (1 bidder) BINGHAM MECHANICAL ENGINEERING remodeling, addn., CLEVELAND, O. Case Institute of Technology, University Circle, Cleveland 6, O. McGeorge-Hargett & Hoag, 7016 Euclid Ave., Cleveland 3, O., engrs. CD 11/14/57.

▲ Glazer & Marotta, 20515 Shaker Blvd., Cleveland 22, O., CA Est. $3,000,000, SHOPPING CENTER, Chagrin Blvd. and Brainard Rd., Woodmere Village, CLEVELAND, O. Village Square Shopping Center, Inc., 20515 Shaker Blvd., Cleveland 22, O. M. E. Huntzinger, c/o owner, archt.

▲ Babcox & Wilcox, Barberton, O., CA Est. $1,250,000, CARBON MONOXIDE BOILER, Lima refinery, LIMA, O. Standard Oil Co. of Ohio, Midland Bldg., Cleveland 15, .

▲ Cecil Daniels, 4629 Miller Ave., Cincinnati, O. Own Forces, $1,650,000, 100 HOUSES, off Rte. 122, MIDDLETOWN, O. J. S. Waid & Assocs., North Bend Rd., Cincinnati, O., engrs.

▲ Jewel Homes, Inc., 1428 Raccoon Rd., Youngstown, O. Owner Builds, $5,500,000, 350 brick Arlington Community HOMES, Raccoon and Burkey Rds., YOUNGSTOWN, O.

Struck Constr. Co., 147 N. Clay St., Louisville, Ky., LB $912,700 (7 bidders), Base Bid, 2 and 3 story, 90,200 sq. ft., brick JUNIOR HIGH SCHOOL, COLUMBUS, IND. City School Comn., 601 Pearl St., Columbus, Ind. Bids Apr. 7. CD 3/25.

▲ K. H. Kettlehut, Box 998, Lafayette, Ind., LB $2,480,000, three, 95,000 sq. ft. JUNIOR HIGH SCHOOLS North, South and East Sides; LB $810,700, 95,000 sq. ft. South Side JUNIOR HIGH SCHOOL, DANVILLE, ILL. Bd. Educ., School Dist. 118, 202 E. Fairchild St., Danville, Ill. Bids Mar. 17. CD 3/9;

Johnsen, Drake & Piper, Rm. 1, 112 N. 7th St., Terre Haute, Ind. LB $833,000, 95,000 sq. ft. North Side JUNIOR HIGH SCHOOL; LB $837,000, 95,900 sq. ft. East Side JUNIOR HIGH SCHOOL (Danville, Ill.).

▲ Durkin Bros. Constr. Co., 102 Milford St., Elmhurst, Ill., CA $1,000,000, 65,000 sq. ft. U-shaped BOYS' DORMITORY, sewage lift station, DESPLAINES, ILL. Maryville Academy, River Rd. at Central St., Des-Plaines, Ill. J. L. Bennett, 3 N. Broadway, DesPlaines, Ill., archt. Awarded Mar. 28.

MISSISSIPPI TO ROCKIES

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

May 4 South Dakota

STREETS AND ROADS

April 26 Kansas April 27 Arkansas

May 4 South Dakota

BUILDINGS—BA

▲ Kan., Independence — HOSPITAL — BA 5/4 — Mercy Hospital, 861 W. Myrtle St., hospital, West Myrtle St. Over $1,300,000. Ryan Engineering Co., 211 West Cloud, Salina, consult. engr. CD 7/1.

Minn., St. Paul—CROP RESEARCH LABORATORY, etc.—BA 5/5—Regents of the University of Minn., 404 Administration Bldg., Minneapolis, Zone 14, 2 story, penthouse 66 x 210 ft. crop research laboratory. $900,000. Plans deposit $30. Hammel & Green, Inc., 2650 University Ave., archt. R. D. Thomas & Assocs., 1200 Metropolitan Bldg., Minneapolis, engrs. CD 7/29, under LB.

▲ Minn., St. Peter—CONTINUOUS TREATMENT—BA 5/12—State Bd. Admin., 19 State Capitol, St. Paul, continuous treatment bldg., State Hospital. $1,400,000. W. Butler Co., 1300 Minnesota Bldg., St. Paul, archt. CD 5/21/58.

Kan., Atchison—CLASSROOM, etc.—BA About 5/23—Maur Hill Preparatory School, Order of St. Benedict, 4 wing, 60x90 ft. cross-shaped classroom bldg., 2 story, 90x130 ft. gymnasium. $850,000. Shaver & Co., 205½ S. Santa Fe St., Salina, archt. CD 3/31.

BUILDINGS—SLC

▲ Texas — ELECTRIC POWER STATION — West Texas Utilities Co., 1062 N. 3rd St., Abilene, Oak Creek Electric Power Station, Bronte, near Abilene. $5,000,000. Sargent & Lundy, 140 S. Dearborn St., Chicago, Ill., engrs. CD 9/30/57.

▲ Tex., Austin — SHOPPING CENTER — Capital Plaza Shopping Center, Theo. W. Berenson, 802 Capital National Bank Bldg., soon lets contract 156,000 sq. ft. masonry shopping center, $1,250,000. Irving R. Klein & Associates, 1317 Austin St., Houston, and Sumner Schein, 271 Huntsinger Ave., Boston, Mass., assoc. archts. Irving R. Klein & Associates, 1317 Austin St., Houston, engrs. CD 4/24/56.

HEAVY CONSTRUCTION—LB & CA

▲ MINNESOTA—State Hy. Dpt., State Hy. Bldg., St. Paul,

Minn.—Alexander Constr. Co., 4641 Hiawatha Ave., Minneapolis, Minn., CA $1,749,948, grade, base, concrete pavement and bit. surf. 3.1 mi., Dakota and Hennepin Counties;

Minn.—Megarry Bros., 437 33rd Ave. N., St. Cloud, Minn., CA $945,139, grade, base, bit. surf., pumping station and bridges 3.1 mi., Anoka and Ramsey Counties;

Minn.—Central States Constr. Co., Crosby, Minn., CA $642,958, grade, concrete pavement and bit. shoulders 7.6 mi., Chippewa Co. Bids Apr. 1. Grand total $3,338,045. CD 4/5, under LB.

▲ MINNESOTA—State Hy. Dpt., State Capitol Bldg., St. Paul,

W. D. Giertsen Co., 3501 Xenwood Ave. S., Minneapolis, Minn., CA $1,965,264, Bridge No. 9300 over Mississippi River at Fort Snelling, Ramsey and Hennepin Counties. Bids Apr. 1. CD 4/5, under LB.

▲ Southwestern Electric Power Co., 428 Travis St., Shreveport, La., Own Forces, 49 mi. 161,000 volt transmission line Springdale, Ark. to Boudinot, Okla. incl. station, ARKANSAS and OKLAHOMA. Total est. $1,500,000. CD 3/1;
Leo Jounragin, Crane, Mo., CA right-of-way clearing (Arkansas and Oklahoma).

▲† Western Contrg. Corp., 400 Benson Bldg., Sioux City 1, Iowa, LB $17,400,000, est. $18,398,377, (8 bidders) 9 underground Atlas Missile installations on Individual sites, Lincoln Air Force Base, ENG-25-066-60-52, LINCOLN, NEB. U. S. Eng., 1709 Jackson St., Omaha 2, Neb. Bids Apr. 11. CD 2/17.

▲ TEXAS—State Hy. Comn., Austin,

F. & C. Engr. Co., Box 74, Houston, Tex., CA $1,452,162, grading, structures 9.472 mi. Hy. IH-10 Proj. I 10-8 (25) and (26) Jefferson Co., bids Mar. 1. CD 2/24, under LB.

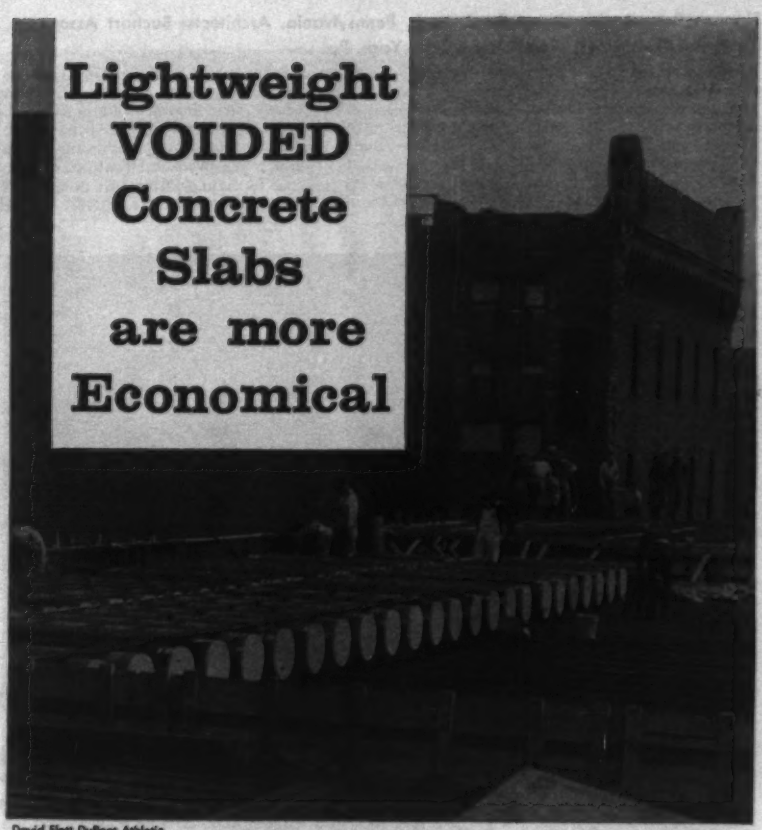
▲ TEXAS—State Hy. Comn., Austin,

Tex.—Cecil Ruby Co., Inc., Brown Bldg., Austin, Tex., CA $2,364,113, flex. base, hot mix b. conc. 1.736 mi. Hy. IH 35 Proj. I 35-3 (9), Travis Co.;

Tex.—Trinity Constr. Co., Inc., P. O. Box 3024, Houston, Tex., CA $1,039,194, grading, storm sewer, shell concrete base, b. conc. pavement 0.62 mi. Hy. IH 10, Proj. I 10-7 (68) and (43), Harris Co.;

Tex.—Austin Bridge Co. & Southwestern Contg. Co., Box 1590, Dallas, Tex., CA $551,154, base, hot mix b. conc. 2.592 mi. Hy. ST 6, Proj. U 593 (12), (13) and (14), McLennan Co., Bids Mar. 1. Grand total $3,954,461. CD 2/23.

Lightweight VOIDED Concrete Slabs are more Economical



David Flett DuPont Athletic Center, Massachusetts Institute of Technology, Cambridge, Mass. Architects: Anderson Beckwith and Haible, Builders: George A. Fuller Co. Photo: Shaw Studios/Boston

Form voids in concrete construction with

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SONOVOID®

FIBRE TUBES

Lightweight, structurally strong concrete slabs may be produced by displacing low-working concrete with SONOVOID Fibre tubes. Such voids reduce the dead load in the slab as well as the amount of concrete and reinforcing steel required . . . for economy in construction!

Additionally in buildings and bridges, the reduced weight means savings in foundations and supporting members.

Sonoco SONOVOID Fibre Tubes are specifically designed to form voids in floor, roof, and lift slabs, bridge decks, and in precast, prestressed members. They are lightweight, easily handled and placed, and save contractors *and owners* time, labor, materials, and money.

Order SONOVOID Fibre Tubes in sizes from 2.25" to 36.9" O.D., in standard 18' lengths or as required. Can be sawed . . . end closures available.

See our catalog in Sweet's

For information, slab design tables, and prices, write

- HARTSVILLE, S.C.
- LA PUENTE, CALIF.
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- AKRON, INDIANA
- LONGVIEW, TEXAS
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- BRANTFORD, ONT.
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SONOCO

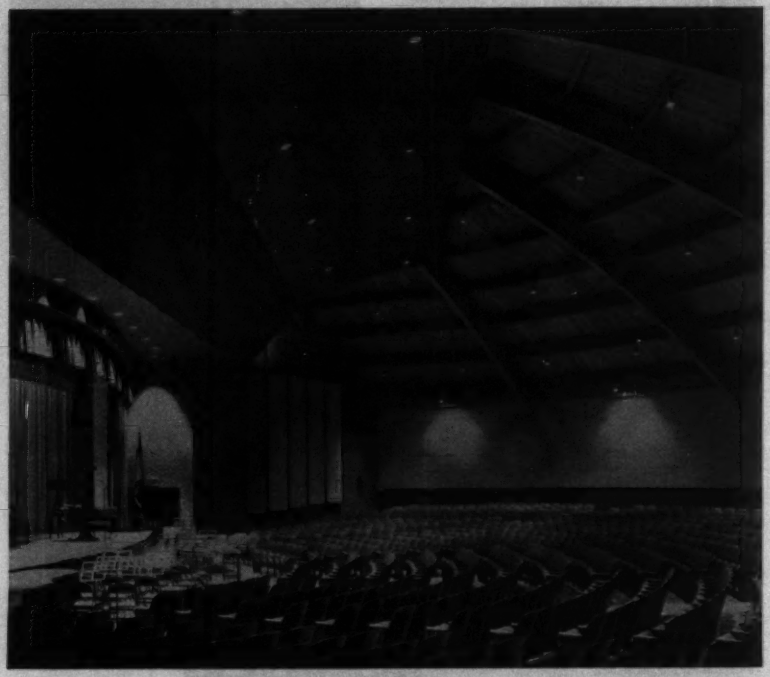
Construction Products

SONOCO PRODUCTS COMPANY

4722

Hannah Penn Junior High School, York, Pennsylvania. Architects: Buchart Associates, York, Pa. Contractors: Reindollar & Son, York, Pa.

Space provided: auditorium seating 850 people; band room; choral room; four practice rooms; instrument storage; uniform storage; lobby with ticket booth; corridors; general storage. ***Structural framing:*** glulam buttressed arches of 167' span spaced radially at 22½°. ***Exterior walls:*** brick. ***Interior walls:*** concrete block, brick, wood and acoustical paneling. ***Floors:*** concrete with asphalt tile in aisles and individual rooms. ***Roof:*** aluminum batten surface over heavy timber decking. ***Heating and ventilating:*** gas-fired unit ventilators with exhausts on the roof. ***Lighting:*** bullet-type down lighting in main auditorium; fluorescent fixtures in lobby, classrooms and corridors. ***Volume:*** 197,963 cubic feet. ***Area:*** 15,837 square feet. ***Cost:*** $15.82 a square foot.



Heavy timber decking and glulam arches and purlins by Timber Structures, Inc. remain exposed in this auditorium in the round, providing economical structural framing. Unaffected natural beauty is a welcome plus value.

TIMBER STRUCTURES, INC.
P. O. BOX 3782-C, PORTLAND 8, OREGON

Division Offices in Ramsey, N. J., Schiller Park, Illinois, Dallas, Texas
DISTRICT REPRESENTATIVES IN MAJOR CITIES THROUGHOUT THE UNITED STATES

Member A.I.T.C. and Producers' Council

† Farrell Constr. Co., Cotton Exchange Bldg., Memphis, Tenn., CA $985,120, channel excavation, channel to Victoria, Inv. No. CIVENG-41-243-60-41, Victoria Co., TEXAS. U. S. Eng., Box 1229, Galveston, Tex. (Correction—contractor). CD 4/4, under CA.

▲ NEW MEXICO—State Hy. Comn., Cerrillos Rd., Santa Fe,
N. M.—Wayne A. Lowdermilk, Inc., and Gardner Constr., P.O. Box 1165, Espanola, N. M., CA $1,464,002, est. $1,384,183, 12 mi. East Arizona-New Mexico State Line East Proj. No. I-040-1 (17) 12, McKinley Co.;
N. M.—Skousen Constr. & Skousen-Hise, 208 Springer Bldg., Albuquerque, N. M., CA $1,215,295, est. $1,221,966, US 550 Aztec Urban Proj. No. F-032-1 (6), San Juan Co.;
N. M.—Skousen-Hise Contr. Co., 208 Springer Bldg., Albuquerque, N. M., CA $243,672, est. $315,142, Eunice Loop Rd., North and South, Proj. No. S-1219 (9), Lea Co.;
N. M.—Leslie Wheeler, 2129 Lead, S.E., Albuquerque, N. M., CA $221,011, est. $277,901, NM 120 Wagon Mound-Ocate, Proj. No. S-1429, Mora Co.;
N. M.—Haake Constr. Co., Inc., P.O. Box 4188, Coronado Sta., Santa Fe, N. M., CA $306,071, est. $335,684, NM 10 Gran Quivera North, Proj. No. S-1500 (4), Torrance Co. Bids Apr. 8. Grand total $3,450,051. CD 3/29.

BUILDINGS—LB & CA

▲† H. L. Coble Constr. Co., 1705 Battle Ground Ave., Greensboro, N. C., CA $7,669,800, 470 unit Capehart HOUSING, Blytheville Air Force Base, No. 2, BLYTHEVILLE, ARK. Base Procurement Office, Blytheville Air Force Base, Blytheville, Ark., Bids Mar. 24, CD 4/5, under LB.

▲ Dickmann-Pickens-Bond Constr. Co., Gazette Bldg., Little Rock, Ark., CA $1,000,000, 120,000 sq. ft. mfg. coin handling equipment FACTORY, HOT SPRINGS, ARK. Garland County Industrial Development Corp., Hot Springs, Ark., National Rejectors, Inc., St. Louis, Mo., lessee. Swerdrup & Parcel, Inc., 915 Olive St., St. Louis, Mo., archts.

▲ Andrews Ind. School Dist., Andrews, Tex., rejected bids Mar. 25, HIGH SCHOOL, ANDREWS, TEX. LB $2,946,000. CD 4/4.

Dyer Constr. Co., Lone Star Gas Bldg., Dallas, Tex., LB $918,500, (2 bidders), general contract OFFICE UNIT, Griffin St., DALLAS, TEX. United Fidelity Life Insurance Co., 1029 Elm St., Dallas, Tex. Wyatt C. Hedrick, 904 Fort Worth Ave., Dallas, archt.-engr. Bids Apr. 5. CD 3/22.

▲ Delta Engineering Corp., 2121 San Felipe Rd., Houston, Tex., CA Approx. $1,500,000, design and construct GAS PROCESSING PLANT; Approx. $1,000,000, SULPHUR PLANT, JOURDANTON, TEX. Warren Petroleum Corp., 1st City National Bank Bldg., Houston, Tex. Delta Engineering Corp., 2121 San Felipe Rd., Houston, Tex., engrs.

▲ Harold Hendricks Constr. Co., 1¼ mi. Sioth St., McAllen, Tex., CA $1,198,900, HIGH SCHOOL, between PHARR-SAN JUAN, TEX. Pharr-San Juan Ind. School Dist., P.O. Box 321, Pharr, Tex. CD 4/8, under LB.

▲ Williams & Peterson Constr. Co., 614 S. 3 St., Salt Lake City, Utah, CA Est. $3,000,000, GYPSUM BOARD PLANT, CODY, WYO. Big Horn Gypsum Co., Cody, Wyo. Johnson & Johnson, Engrs.-Archts., Inc., 111 W. Washingtn St., Chicago, Ill. engr. CD 10/13.

▲ Martin K. Eby, 3535 S. Huron St., Englewood, Colo., LB $1,723,050, Great Western Aggregate PLANT for mfg. Idealite 1 kiln operation with annual capacity of 300,000 cu. yd., DENVER, COLO. Great Western Aggregates, Inc., Denver National Bldg., Denver, Colo. Bids Mar. 30. CD 3/1.

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES
May 4 California

STREETS AND ROADS
May 4, 5, 11, 25 California May 5 Hawaii

▲ Calif., Los Angeles—BA 5/3—Los Angeles Water & Power Dpt., 316 W. 2nd St., constr. 10,000 ft. 61 in. water pipe line 4th St. Trunk Line Unit. $1,000,000.

▲ California—BA 5/11—State Dpt. Water Resources, 1120 N. St., Sacramento, Installation Forebay and Southbay Pumping Plants, 15 mi. west of Tracy Pumping Plant and constr. 0.8 mi. 65 ft. steel pipe discharge line, 13 ft. diam., 85 ft. high concrete surge tank, Second Phase South Bay Aqueduct, Alameda Co. California Water Plan, Spec. 60-1. $1,000,000. CD 9/20/55.

▲ CALIFORNIA—BA 5/25—State Div. Hys., 1120 N. St., Sacramento,
Santa Clara Co.—grading, paving to constr. 6.3 mi. six lane freeway on Bayshore Freeway between 0.3 mi. north of Charleston Rd. in Mountain View and Fair Oaks Blvd. near Sunnyvale and Freeway and Interchange constr. on Sign Rte. 9 (Mountain View-Alviso Rd.) incl. five Interchanges. IV-SC1-68-113-A, B, SUNV.-MVEW, SC1, SJS. $4,940,000. CD 10/27/58.

▲ Calif., San Diego—BA 6/15—La Colonia Bonita Development Co., 4625 32nd St., sewage treatment plant. $1,250,000. Extended date. CD 4/5.

BUILDINGS—BA

▲ Calif., Santa Clara — HIGH SCHOOL — BA 5/10 — Santa Clara Union High School Dist., 1000 Market,

(Continued on page 130)

For a better profit picture...

CHECK EUCLID C-6 WORK-ABILITY

You'll find this new C-6 has the all-around tractor versatility needed for heavy construction, mine and quarry work. With five years of rugged field and proving ground test, this new crawler sets higher standards of performance on the toughest jobs for tractors in the 200 h.p. class.

Here are just a few advantages you get in the C-6 . . . a dependable GM 6-71 engine delivering 211 net h.p. to the power train . . . a proven Torqmatic Drive that provides full-power shift and cuts cycle time . . . fast-as-a-fox maneuverability . . . almost unbelieveable ease of handling . . . accessibility for servicing that pays off in more productive time on the job. It responds like nothing you've ever touched!

Have your Euclid dealer give you all the facts on the C-6 . . . he'll show you why this new "Euc" belongs in your spread . . . why it's your best equipment investment.

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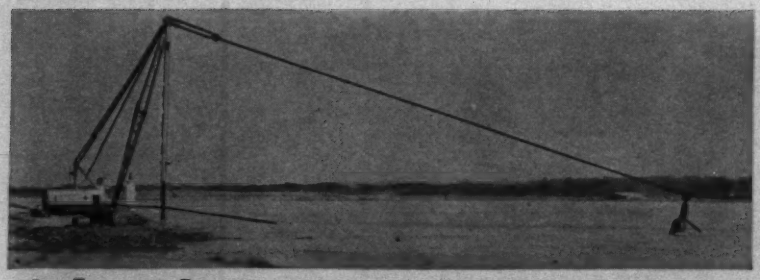
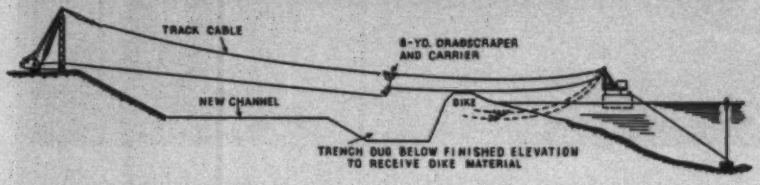
EUCLID EQUIPMENT

FOR MOVING EARTH, ROCK, COAL AND ORE



Eight-Yd. Sauerman DragScraper Cuts Seaway Dike Removal Costs

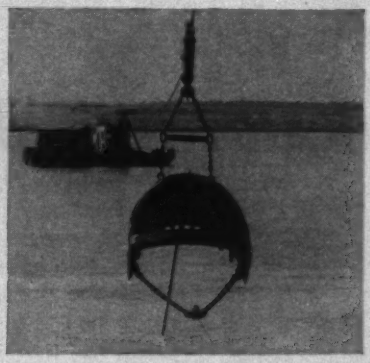


Atlas Construction Co. Ltd., Montreal, Que., had the job of enlarging the St. Lawrence Seaway channel near Iroquois, Ont. An 8-yd. Sauerman Crescent DragScraper and four-wheeled carrier was used with a crane to remove the perimeter dikes composed of tough digging glacial till and to backfill the trenches.

The hoisting line of the crane, used as a track cable for the Crescent and carrier, ran through a block on the boom tip to a 25-ft. tail tower mounted on a 20 x 40-ft. barge. The structural steel spud mast used to support the boom was pin-connected to facilitate movement of the crane.

After inhauling to the trench, the 8-yd. Crescent was gravity-returned part of the way to the excavation. A single-drum hoist mounted on the barge tail tower controlled the backhaul cable used to complete the return cycle. The job was handled by two operators, one on the crane and the other on the barge. The operating span varied from 600 to 900 ft. Average DragScraper hauls were 300 to 600 ft.

This is a typical example of how a crane can handle a Crescent DragScraper of greater capacity than the original dragline bucket or clamshell. Larger machines can usually double their capacity with a DragScraper. Smaller units can handle about 50% more. Machine range is limited only by the spooling capacity of the hoist drums. It can reach farther, dig deeper under water and take material out of soft areas without the nuisance of mats and the hazard of undermining the crane.



DragScraper traveling down track cable on return to underwater dike. Barge is in background.

When the boom is supported by a strut, a DragScraper of still greater capacity can be used. The strut increases overturning resistance and allows a greater load to be imposed. Crescents used in conjunction with such supports increase the rated capacity as much as 4 to 1.

Many operators consider the Crescent DragScraper as standard auxiliary equipment. The DragScraper permits bidding on and getting those premium jobs that could not be handled without considerably more time and expense by other means.

Find out how much you can increase your crane's capacity. Write or call giving the make, model number and boom length of your machine. Field Report 228 and Catalog J gives more information on DragScraper operations with cranes.

SAUERMAN BROS., INC. 632 SO. 28th AVE. BELLWOOD, ILL.
Linden 4-4892 • Cable CABEX—Bellwood, Illinois
50th Anniversary Year
Crescent DragScrapers • Slackline and Tautline Cableways • Durolite Blocks

(Continued from page 128)

St., Santa Clara, Unit 1, 2 story, 83,000 sq. ft. wood frame, rein.-con. Adrian Wilcox High School. $1,200,000. Plans deposit $50. L. F. Richards, 1038 Jackson St., archt. CD 2/10/58.

▲ Calif., San Francisco—SCHOOL—BA 6/1—City and San Francisco County, Dpt. P. Wks., City Hall, Lowell High School. $4,000,000. Masten & Hurd, 526 Powell St., San Francisco, archts. Constr. this summer. CD 1/16/57.

HEAVY CONSTRUCTION—LB & CA

▲† Gordon H. Ball, Inc., 2725 Concord Ave., Concord, Calif., LB $2,934,444 (7 bidders), aircraft maintenance facilities, Lemoore Naval Air Station, NBy 25283, LEMOORE, CALIF. Dist. P. Wks. Office, 12th Naval Dist., Rm. C112, San Bruno, Calif. Bids Apr. 6. CD 4/4.

▲† Jas. W. Glover Ltd., 1046 Waimanu, Honolulu 14, Hawaii, LB $1,178,000, est. $1,280,000, dual Nike-Hercules Launching Sites 3 & 4, Bellows Field, HAWAII. U. S. Eng., 96 Fort Armstrong, Honolulu, Hawaii. Bids Apr. 7. CD 3/21.

BUILDINGS—LB & CA

▲ J. B. Warrack Co., Box 2080, Anchorage, Alaska, LB $1,576,000 (4 bidders), PUBLIC SAFETY BLDG., ANCHORAGE, ALASKA. City, P.O. Box 400, Anchorage, Alaska. Bids Apr. 11. CD 4/6.

Hal Grammer Constr. Co., 2604 N. 36 St., Phoenix, Ariz., CA $809,760, HEALTH DPT. BLDG., PHOENIX, ARIZ., Maricopa Co., Phoenix, Ariz. Bids Jan. 11. CD 1/19, under LB.

M. J. Kuney Co., N. 120 Ralph St., Spokane, Wash., CA $720,000, general contract 1 and 2 story, rein.-con. bldgs. for GIRLS' HOME, SPOKANE, WASH. Good Shepherd Sisters, N. 4819 Lidgerwood St., Spokane, Wash., Bids Mar. 18. CD 3/22, under LB.

▲ J. G. Watts Constr. Co., 672 S. Lafayette Park Pl., Los Angeles, Calif., CA $4,431,435, HIGH SCHOOL, Sunset Blvd. between El Medio and Haverford Sts., Pacific Palisades, LOS ANGELES, CALIF. Bd. Educ., 1425 S. San Pedro St., Los Angeles, Calif. Bids Mar. 11. CD 3/18, under LB.

▲ Yuba Erectors, 4300 Eastshore Hy., Emeryville, Calif. LB $1,313,700, (7 bidders), structural steel, incl. steel stairs, First Phase for 6 story HEADQUARTERS OFFICE for State Department of Motor Vehicles, SACRAMENTO, CALIF. State Div. Architecture, 1120 N. St., Sacramento, Calif. Bids Apr. 5. CD 3/11.

▲ G. L. Cory, P. O. Box 11013, San Diego 11, Calif., CA $1,252,697, (6 bidders), 2 story 39,000 sq. ft., rein.-con. DIAGNOSTIC and TREATMENT CENTER, Mercy Hospital, SAN DIEGO, CALIF. Mercy Hospital, Hillcrest Dr., San Diego 3, Calif. Frank L. Hope, 1447 6th Ave., San Diego 1, Calif., archt. Bids Mar. 24, awarded Apr. 7.

▲ Van Bokkelen-Cole Co., 955 Grand Ave., Oakland, Calif., CA $2,000,000, 1 story, 300x300 ft. HARDWARE STORE, incl. 500 car parking across from Broadway Shopping Center, WALNUT CREEK, CALIF. Simon Hardware Co., c/o contractor.

▲ Valleywood Building Co., 8549 Wilshire Blvd., Beverly Hills, Calif., Owner Builds, $2,503,000, 222 DWELLINGS, Friar St., Victory Blvd., 6300 Block, Kenwater Ave., Tract 21894, WOODLAND HILLS, CALIF.

▲ Walker-Moody Constr. Co., Ltd., 2927 Mokumoa Honolulu 17, Hawaii, LB $1,153,540, (6 bidders), 220 Inmate capacity JAIL, Halawa, HONOLULU, HAWAII. City and Honolulu County, City Hall, Honolulu, Hawaii. Bids Apr. 7. CD 3/23.

CANADA

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
April 28 Nova Scotia May 18, 25 Ontario

HEAVY CONSTRUCTION—LB & CA

▲ Ellis-Don Ltd., Box 852, London, Ont., LB $1,304,636, 2 story, 175x345 ft., steel masonry glass block, asbestos panels, Technical Training Bldg., fdn. on piles and beams, Royal Canadian Air Force Station, CAMP BORDEN, ONT. Defence Constr. (1951) Ltd., 56 Lyon St., Ottawa, Ont. Bids Apr. 6. CD 3/24.

Spino Constr. Ltd., 200 Sauve Ave. W., Montreal, Que., CA $861,359, 5th Section St. Pierre collector sewer between Irwin St. and Brock Ave., MONTREAL, QUE. City, City Hall, Montreal, Que. Bids Nov. 18. CD 11/25, under LB.

▲ J. D. Stirling Ltd., 2199 Jarry St. E., Montreal, Que., CA $1,179,450, Section IV and part of Section V, St. Pierre Collector sewer between Irwin St. and Brock Ave., MONTREAL, QUE. City, City Hall, Montreal, Que. Bids Nov. 18. CD 11/25, under LB.

BUILDINGS—LB & CA

▲ Magil Constr. Ltd., 410 Grattan St., St. Laurent, Que. LB $1,896,500 (17 bidders), HIGH SCHOOL, Westmount Athletic Grounds, St. Catherine St. W., MONTREAL, QUE. Westmount Protestant School Comn., 10 Academy Rd., Westmount, Montreal, Que. Bids Apr. 6. CD 3/4.

LATIN AMERICA

HEAVY CONSTRUCTION—BA

▲ COSTA RICA—BA 5/9—Ministry of P. Wks., Inter-American Hy. Office, San Jose,
39 bridges and approx. 20 kilometers of sub-base, between San Isidro Del General and Panama Border. Projs. 9-A, 9-B and 9-C. Plans deposit $100.

(Proposal Advertisements see pp. 145 to 148)

Where the elements are corrosive . . . specify

REINFORCED CONCRETE

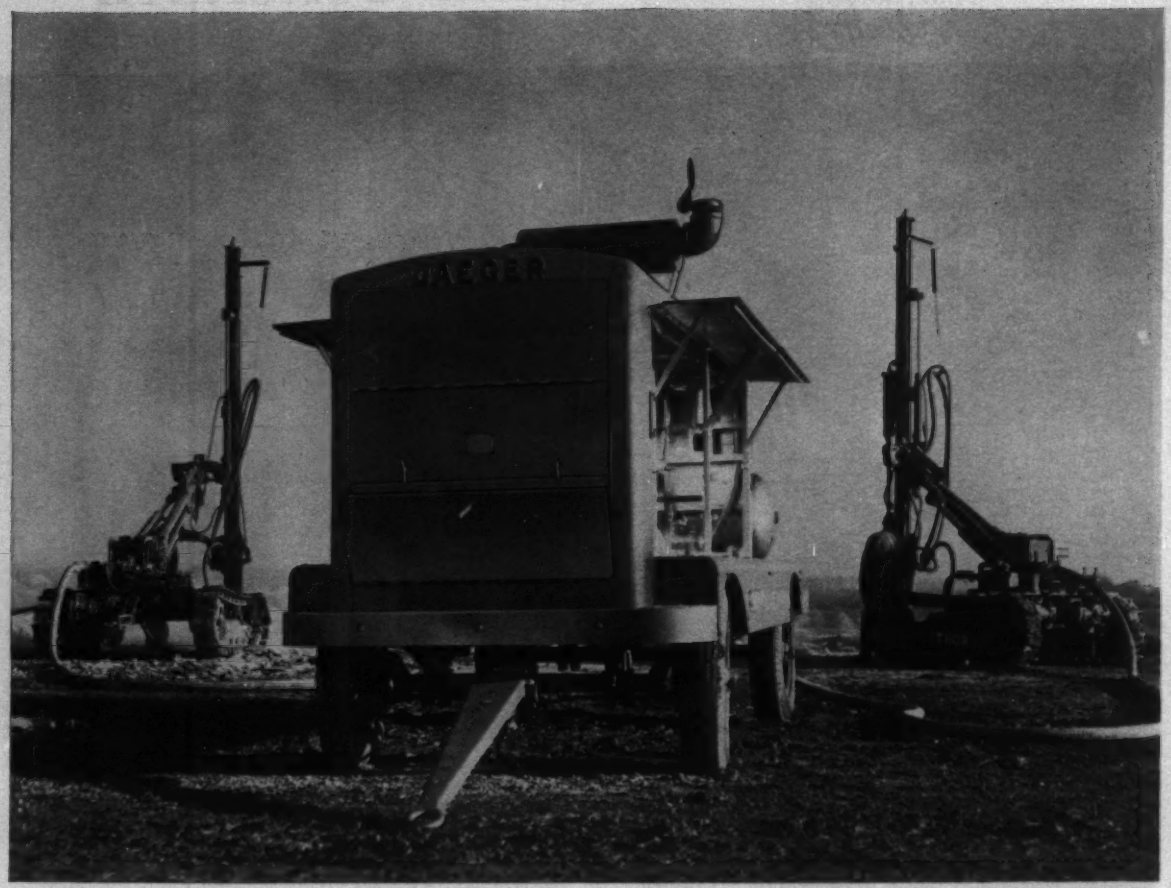
Architects and Engineers: Connell, Pierce, Garland & Friedman, Miami, Florida
General Contractor: Graves Construction Company, Miami, Florida

Along our seaboards where salt air often corrodes construction materials, reinforced concrete is used extensively for buildings of all types and sizes. At the Allapattah Baptist Church Educational Building in Miami, Florida, reinforced concrete was specified for its outstanding corrosion resistance, as well as its *lower construction costs, lower maintenance costs, and greater fireproofing qualities.*

Before you build, investigate the superior design and cost-saving qualities of this extremely flexible construction medium.

Concrete Reinforcing Steel Institute
38 S. Dearborn St.
Chicago 3, Illinois

3-60



THE JOB was drilling 3″ holes to 25′ depth, in limestone so hard the insert carbide bits had to be reground after every 48′ to 50′ of drilling.

THE TEAM is a Jaeger "900" rotary compressor behind two Thor TR-5 air-and-hydraulic crawlers with 4½″ drifters.

FOOTAGE AVERAGED 2′ per minute (1′ per drill), the rate varying with the ledge strata.

A NOTABLE ECONOMY was in the fuel-saving, engine-saving speed of the compressor. *It maintained 100 psig at the drills without ever running faster than 1400 rpm.*

World's slowest running "900" compressor powers today's fast drilling team

JAEGER DELIVERS MORE AIR FROM SAME HORSEPOWER

Jaeger "900" uses the same GM 6-110 Diesel as other "900" compressors, but delivers its rated capacity at 100 rpm slower speed — 1700 instead of 1800. Its fuel factor is more than 500 cu. ft. of delivered air per pound of fuel consumed. The engine lives longer because it takes it easier throughout its operating life. Compressor life is longer, too. 8000 hours without a vane replacement is not unusual. Ask any Jaeger owner; ask your Jaeger distributor — or send for new Catalog JC-O.

Air-and-hydraulic drill adapts to any desired position. Drill and compressor make a self-powered mobile "team".

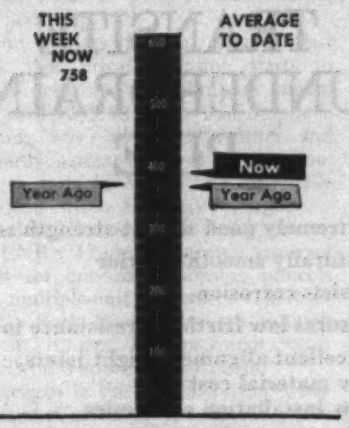
THE JAEGER MACHINE CO., 200 Dublin Ave., Columbus 16, Ohio

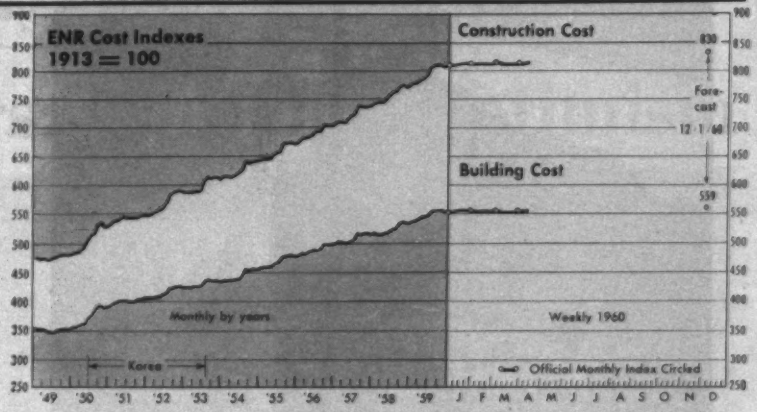
Jaeger Machine Co. of Canada, Ltd., St. Thomas, Ontario

PUMPS • MIXERS • TRUCK MIXERS • PAVING MACHINES

Construction Scoreboard

This Week...





ENR INDEXES (1913=100), 20-cities' average	Week of Apr. 14 1960	% Change from Mar. 17 1960	% Change from Apr. 16 1959
Construction Cost	815.78	+0.3	+3.8
Building Cost	557.56	+0.5	+2.7

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850. 1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518.

AMOUNT OF CONTRACTS LET

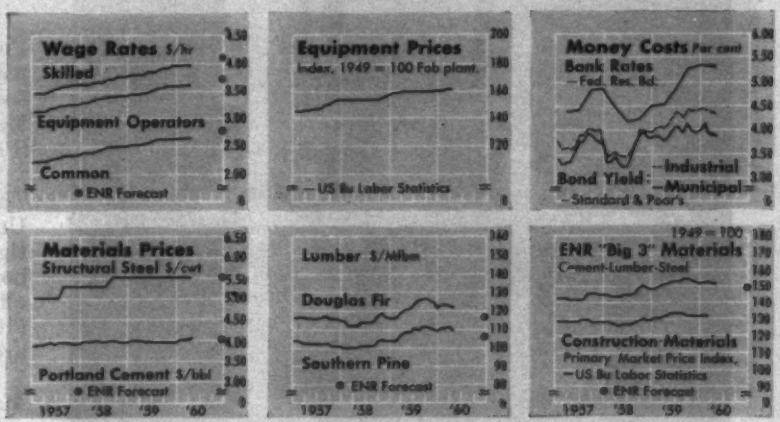
Contracts Awarded In 50 States By Type	This Week millions	Cum. 16 wks 1960 millions	Cum. 16 wks Chge '59-'60 %
All Heavy Construction	$758.2	$6,180.9	+ 7
By Ownership			
PRIVATE	529.6	3,352.5	+21
PUBLIC	228.6	2,828.4	− 7
State & Municipal	200.6	2,172.0	+ 3
Federal	28.0	656.4	−28
By Type of Work			
PUBLIC			
Waterworks	61.4	144.9	+11
Sewerage	11.8	164.8	− 4
Bridges*	20.1	305.5	+65
Highways	50.9	834.0	0
Earthworks, Dams & Waterways	8.7	195.5	−24
Buildings:			
Excl. Housing	43.3	640.5	−20
Housing	14.9	152.7	−12
Unclassified	17.4	391.8	−19
PRIVATE			
Buildings:			
Mass Housing	355.0	1,648.5	+39
Commercial	64.5	663.9	− 2
Industrial	98.2	723.7	− 8
Unclassified	12.0	315.1	+154

*Includes Private bridges

NOTE: Minimum size projects included are: Waterworks and waterways, $53,000; other public works, $88,000; industrial buildings, $110,000; other buildings, $400,000.

NEW CONSTRUCTION CAPITAL

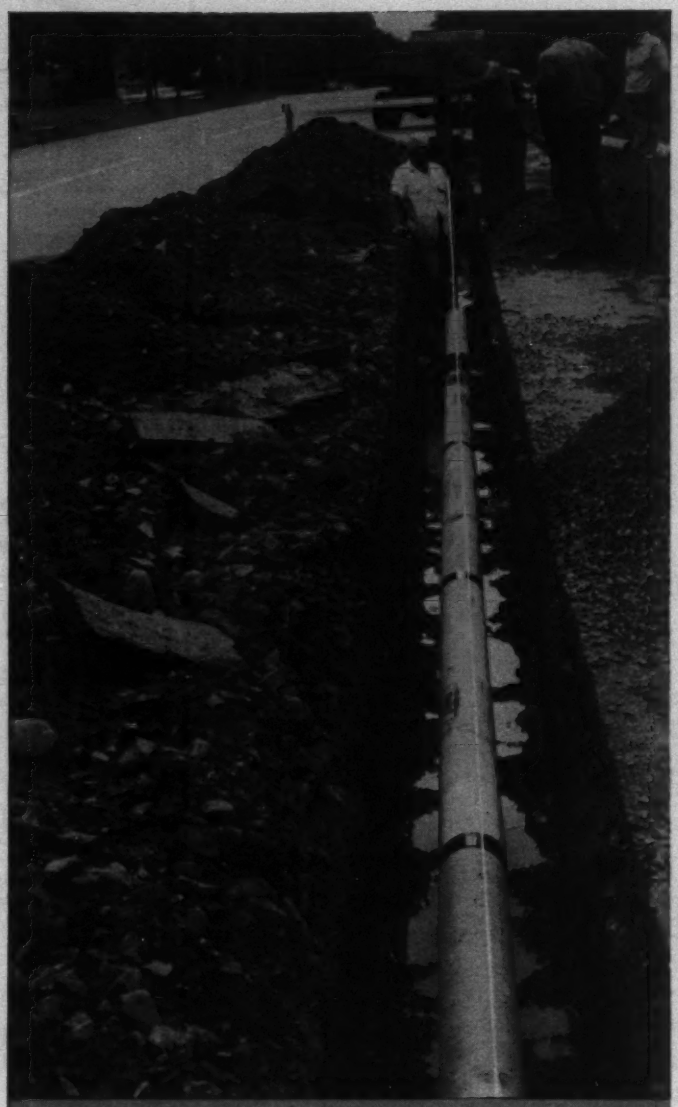
	Week of Apr.14 millions	Cum. 15 wks 1960	Cum. 15 wks Chge '59-'60 %
Corporate Securities	$123.8	$ 818.3	−26
State and Municipal:			
All Except Housing	91.0	1,885.8	+ 6
Housing	....	13.6	−56
Federal Loans	1.8	53.8	+57
Federal Aid	....	....	....
Total Nonfederal	$216.6	$2,771.5	− 6
Federal Appropriations:			
Projects in U. S.	....	....	....
Outside U. S.	....	....	....
Total New Capital	$216.6	$2,771.5	− 6



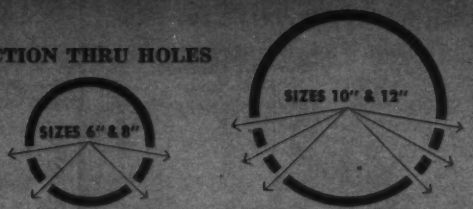
This Month . . .

ENR COST INDEXES IN 22 CITIES, 1913 = 100

City	Construction Cost April 1960	Construction Cost Percent Change from last Month	Construction Cost Percent Change from last Year	Building Cost April 1960	Building Cost Percent Change from last Month	Building Cost Percent Change from last Year
Atlanta	633.26	−0.9	+6.6	497.72	−1.1	+4.3
Baltimore	754.72	+2.0	+6.1	554.82	+0.4	+1.9
Birmingham	652.68	0	+4.6	516.59	0	+3.7
Boston	833.00	0	+2.5	564.67	0	+1.7
Chicago	918.71	0	+5.8	581.60	0	+2.0
Cincinnati	815.88	+0.1	+3.9	541.40	+0.2	+3.1
Cleveland	920.49	0	+3.1	553.44	0	+2.6
Dallas	604.04	0	+5.4	494.17	+0.5	+4.6
Denver	757.86	0	+3.7	544.27	+0.4	+2.3
Detroit	962.74	0	+7.1	598.96	0	+3.0
Kansas City	798.46	0	+0.7	552.67	0	+0.8
Los Angeles	870.38	0	+4.5	555.99	0	+2.7
Minneapolis	860.16	0	+2.5	569.61	0	+2.8
New Orleans	644.46	0	+3.9	514.34	0	+3.6
New York	1,010.58	−0.1	+4.1	645.06	0	+2.0
Philadelphia	790.37	−0.4	−1.7	577.22	−0.5	−1.0
Pittsburgh	857.54	0	+2.1	608.70	0	+2.3
St. Louis	879.81	0	−0.03	578.88	0	+0.5
San Francisco	848.98	−0.3	+3.0	548.30	−0.4	+0.7
Seattle	859.42	0	+3.0	505.90	+0.7	+1.7
U. S.—20 Cities' avg	813.58	+0.01	+3.0	555.23	+0.01	+2.2
Montreal	630.39	0	+3.3	461.29	+0.6	+2.7
Toronto	665.39	−1.2	+2.5	487.69	−1.6	−1.1



SECTION THRU HOLES



The minimum crushing strengths* of Transite Underdrain Pipe for subsurface drainage systems are shown in the following table:

PIPE SIZE (Inches)	TOTAL APPLIED LOAD PER LINEAL FT. (pounds)	PIPE LENGTH (Feet)
6	1,000	10
8	1,000	10
10	1,100	13
12	1,200	13

*A.S.T.M. 3-edge bearing method
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- **Resists corrosion**
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- **Excellent alignment, tight joints, low material cost for new installation economies**

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Homebuilders: Cautious Optimism

The trend of private mass housing still points up.

The Census Bureau reported last week that private housing starts in March remained at February's annual rate of 1,115,000 units—this despite a slashing wave of frigid weather and blizzards across most of the nation. Actual starts in March rose seasonally to 93,800 from February's 74,400.

Backing that report in dollar volume are ENR's 12-month moving contract totals for one-family housing projects and multiple-unit structures (chart at right). Both showed strength through March. In fact, the apartment sector has all the symptoms of a boom.

Strength in the over-all private housing market so far, in the face of an extremely tight mortgage market, can be attributed to the robust support of rental and cooperative housing. This undoubtedly will hold true for the remainder of this year and next.

By next month, the future of the one-family market for this year should become more clear.

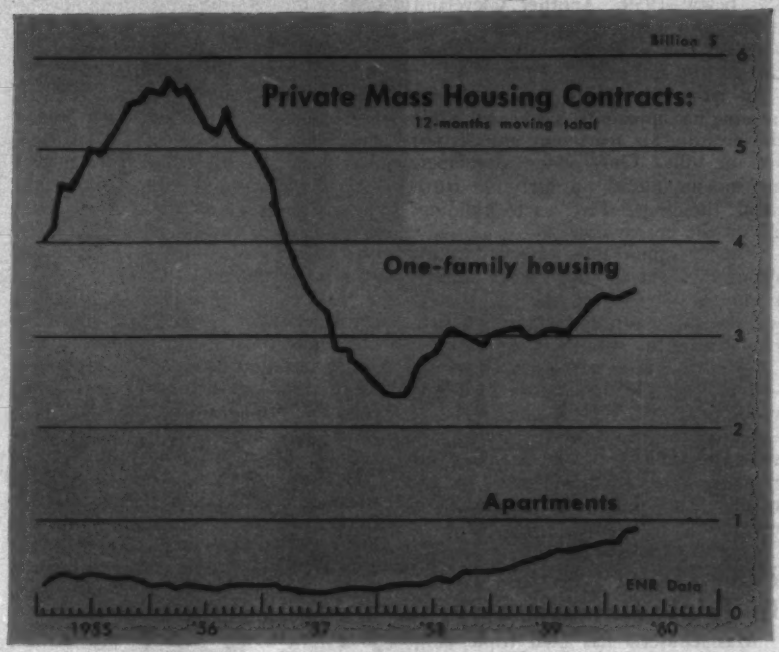
The money market has been churning. Government securities yields have dropped then jumped in a matter of days. Corporate and municipal bond yields have been in a declining trend—but there are some signs rates may get back on the ladder.

Should interest rates on government and corporate debt return to the high levels of late last year and early this year, homebuilders will have cause to worry. But there is one bright spot: net savings of savings and loan associations in the first quarter rose 9% above last year.

Should savings gains continue to outstrip last year in the months ahead, mortgages will become more readily available. The increase in the savings gain has already been reflected—probably only temporarily—in most areas of the country. Builders report more mortgage funds available.

But the slight increase in available funds could disappear overnight. When industry puts its expansion plans in the works (ENR Apr. 14, p. 25) and public works construction gets going big (ENR Apr. 7, p. 21), homebuilders and their potential customers could find themselves in a money squeeze.

Builders are well aware of that possibility. They are cautious in the face of what most believe will be a smaller housing year than last.



Builder comments do highlight the essentially local quality of homebuilding. An ENR survey of builders in major economic regions of the country shows that most believe they will build fewer housing units this year than in 1959. But in almost every case they are not really sure.

Builders in the Hartford area and central Connecticut are certain that they will do better this year than last. That does not mean they expect record production. In central Connecticut, 1959 was a poor housing year in comparison to the rest of the nation.

New York City area homebuilders still stand by an earlier estimate that the volume of housing units this year will decline 10%, perhaps 15%. Money is tight and the banks are screening potential buyers closely.

One major builder reports that a year ago, out of 15 persons who made a deposit, he obtained qualifications of 10. Now, out of 15 potential buyers, only six pass credit inspection.

While several areas of the nation report that funds have become more easily available in recent weeks, the reverse is true in the New York City metropolitan area. Mutual savings banks are losing savings at a fast rate to West Coast savings and loan associations, which are advertising in eastern newspapers, promising interest on savings of 4½% compounded quarterly.

New York mutual banks are limited to a maximum of 3.75%, and that rate is paid only on funds on deposit for two years or more. And the maximum rate on deposits of less than two years is 3½%. The 1.75% to 1% difference is large enough to attract the savers, so deposits are moving in big chunks to the West Coast.

To a lesser extent, the same is occurring in Connecticut and Massachusetts savings banks.

But the shift of funds obviously has to benefit the savings and loan institutions and builders on the West Coast. Mortgage money—although not cheap—is certainly available.

Southern California builders report they will equal last year's volume. Some expect to exceed 1959 volume, even if only slightly.

Demand in the San Francisco area is steady. But a slight decline in homebuilding is anticipated. However, a sharp increase in construction of rental housing will take up much of the slack, perhaps even balance it entirely.

Builders in Cleveland and northeast Ohio plan to boost 1960 production 6% over last year. So reports the

Cleveland Electric Illuminating Co. Significantly, all the increase is attributed to a healthy rise in apartment house construction. Single-dwelling starts in the area are expected to be 3% below 1959. Another Cleveland source also predicts increased over-all activity, but without a specific forecast for the full year.

In Atlanta, demand for one-family housing has apparently slackened, while the pressure for apartment units is not yet on fully. Only a few developers are moving ahead on high-rise apartment buildings. Five such buildings are on the boards now.

Chicago's market is expected to be strong this year, although down slightly from '59. Here, too, the big splurge will be in apartment buildings, particularly in the suburbs.

Many in Chicago consider this year —or at least the first half—a breathing spell.

Chicago's breathing spell could be symptomatic of what is occurring nationwide—a shifting of gears in the market from one-family to multiple-unit housing.

Price-Fixing Charges End In Triple Damages Suit

Massachusetts has filed triple damage suits against the Bituminous Concrete Association, Inc., and 17 companies that make and sell bituminous concrete, road tar and asphalt. All have already been ordered by a federal judge to pay fines totaling $456,000 for price-fixing conspiracies (ENR Feb. 4, p. 81).

The association and the companies indicted last summer under the Sherman Act, pleaded "no contest." Individual fines ranged from $5,000 to $105,000 each.

The latest suits charge conspiracies to fix prices and to submit fictitious bids to cities and towns.

Massachusetts' Attorney General Edward J. McCormack has asked the federal court in Boston to determine the damage and then award triple the amount. The damages could go as far back as 1953, when the federal government sought the indictments. Damages would be based on the difference between fair market prices and the alleged overcharges.

The complaints filed by the state say bituminous dealers and asphalt dealers each have annual sales in Massachusetts of $10 million; road tar dealers, $2 million annually.

Sales of bituminous concrete and asphalt to the state alone are estimated to have averaged well over $5.5 million each year from 1953-59 inclusive.

Honolulu Has Big Housing Plans

While a large segment of the home-building industry looks at the near-term market for its product with some caution (see p. 135), Honolulu developers are apparently certain their area's long-term market will be a rich one.

Three developing groups alone are planning construction of 45,000 houses and related commercial installations that have an estimated construction cost of well over $1 billion. Currently, the programs are on a 10-year construction schedule. But the timetables could be extended or shortened, depending on demand factors.

Nine other developers are planning construction of a total of 9,000 houses in various areas on the island of Oahu and around its major city, Honolulu. Their total construction costs could run $400 million or more.

Most recent addition to the large-scale developers is a joint venture group consisting of American Factors, Ltd., Lakeside Development Corp. and the Bernice P. Bishop Estate. American Factors is one of Hawaii's five largest business organizations. It is in finance, agriculture and wholesale and retail merchandising. The Bishop Estate owns most of the 13,500 acres on which 25,000 houses will be erected. Lakeside Development will handle construction. Work has already been started.

Now under way is Henry J. Kaiser's Hawaii-Kai Development, which will involve outlays of $350 million. On the 6,000 acres, 10,000 houses, stores, apartment buildings and hotels will be built. This land is also owned by the Bishop Estate.

Across from Honolulu, in the area known as Windward Oahu, Clint Murchison Jr. of Texas, and Paul Trousdale of California plan a development of 10,000 houses. Their Centex Construction Co. will develop the site and construct the houses. The land is owned by Kaneohe Ranch Co.

Following a widespread practice, the building sites will go under long-term leases to home and commercial building owners.

This leasehold system, which dates back to the nineteenth century, has even resulted in changes in Federal Housing Administration and Veterans Administration regulations to permit government-backed loans on houses in Hawaii, providing the land lease extends more than 51 years.

Business in Brief . . .

• **Utilities expanding**—Ohio's eight electric utility companies will spend $1 billion for expansion in the first five years of this decade. Outlays this year are budgeted at $205 million. Companies are Ohio Edison Co., Cincinnati Gas & Electric Co., Ohio Power Co., Cleveland Electric Illuminating Co., Columbus & Southern Ohio Electric Co., Dayton Power & Light Co., Toledo Edison Co. and Marietta Electric Co.

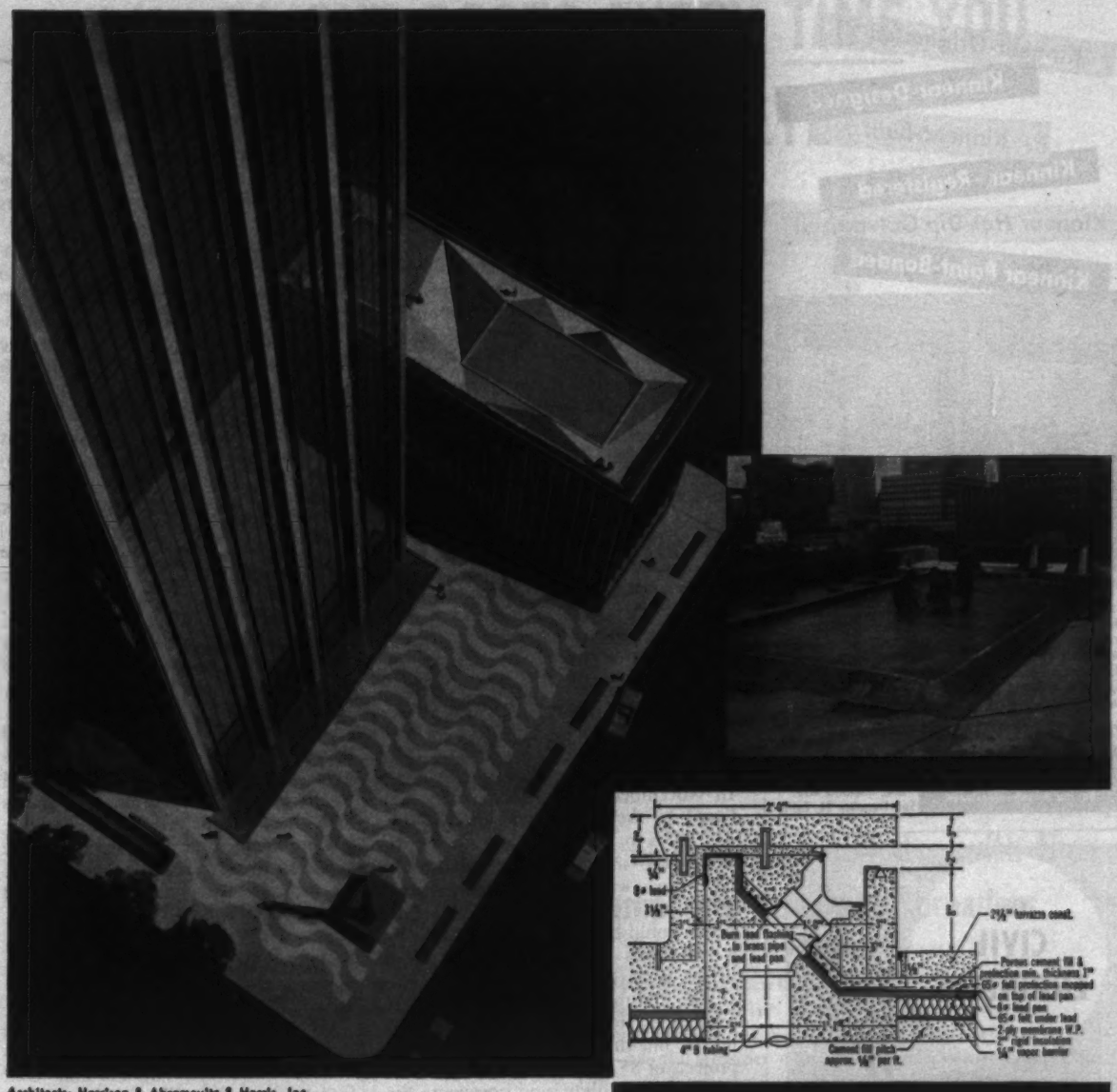
• **Port bond referendum**—San Diego voters will act on a $3.6-million port development bond issue on June 7 when California holds its primary elections.

• **Big plans**—Tennessee's Shelby County Commission at Memphis is studying a report recommending development of 11 industrial areas that would cost more than $124 million. The commission may activate some, all or none of the plans. The report was made by G. A. Heft & Co., New Orleans consulting engineers.

• **Aluminum center network**—The second of 18 aluminum center warehouses will open at Huntington Station, Long Island, N. Y. It will be operated by Clinton G. Bush Co. in conjunction with Reynolds Metals Co., network sponsor. All aluminum products for housing will be carried under one roof.

• **Kentucky road bonds**—Kentucky voters will act on a $90-million highway bond issue proposal in November. They will also have to vote on a proposal to remove the 3% interest ceiling placed on a bond issue approved in 1956. About $30 million of the $100 million of those highway bonds remain to be sold.

• **"Buy Mississippi"**—Gov. Ross R. Barnett of Mississippi will attempt to bar where possible, the use of non-Mississippi materials in state-financed construction. He's urging that state buildings be designed for maximum use of state products and that designers specify them.



Architects: Harrison & Abramovitz & Harris, Inc.

Reflecting Pools at the New Time-Life Building are Permanently Waterproofed with Lead

The new Time and Life Building... a breathtaking addition to Manhattan's ever-changing skyline... consists of a 48-story free standing tower without setbacks and an L-shaped base of seven stories abutting the tower. Eight shimmering reflector pools... seven at the base of the tower and one on the roof of the abutting seven story building... lend additional beauty to this new home of a publishing empire. Since these pools are situated directly over offices and passageways, the architect was faced with the problem of making them permanently waterproof. He found his solution in the use of sheet lead.

Why lead? Because no other material could do the job as well. This versatile metal provides a permanent waterproofing membrane that will last as long as the building itself. Its ease of handling and shaping to fit the surfaces over which it is laid, and bonded joints that can be made permanently waterproof permit trouble-free installation through the years to come.

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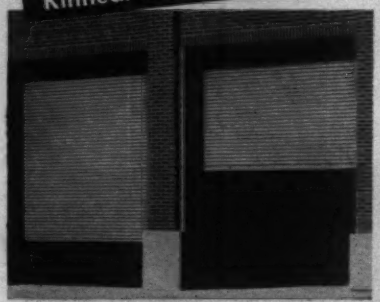

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Texas Water Program Falters

Texas' $200-million water resources development program is falling far short of expectations. The communities are not moving so fast as had been originally hoped.

So far the state has sold only $10 million worth of bonds, and only one loan, of $3 million, has been approved by the state's Water Development Board, administrator of the program. And that $3 million may not even go for construction—it may have to be paid out by the Lower Nueces Water Supply District for land.

The district is constructing Wesley Seale Dam near Corpus Christi, an $18-million project. Landowners brought suit against the district, contending the land acquired by condemnation at the appraisal price of $850,000 is worth $2.7 million more. A court decision has not been made, but the district borrowed the $3 million to cover the potential judgment.

The program was initiated in 1957 when the legislature authorized a referendum on $200 million worth of bonds for water resources development. In November of 1957, the voters said "yes" to the proposition (ENR Nov. 21, 1957, p. 22). Under the legislation, $100 million of the total could be issued without further legislative action; the second $100 million in bonds could be issued after approval by a two-thirds majority in both houses of the legislature.

The statute provides that the state lend cities, towns, and water districts up to one-third of the cost of each project, or $5 million, whichever is less. The political subdivision borrowing the funds must pay the loan back with interest, this rate being the amount being paid by the state, plus another ½%.

The Nueces Water Supply District is paying the state interest of 4.08%, which is equal to the 3.58% Texas is paying on the bonds it sold, plus a ½% surcharge.

State officials believe the program is bogging down on those two points—the loan limitation and interest charges.

Currently, two changes are being considered for submission to the 1961 legislative session. Both involve the loan limitation.

One would permit the state to loan a political subdivision up to one-half the total cost of a water resources project. The other would permit full-value loans, up to a maximum of $5 million per project.

The interest charge, although considered to be a factor, is not a serious drawback, even though communities can obtain loans under certain circumstances from the Corps of Engineers for 2½ or 3%.

When the Corps builds a flood-control project, a local district can also obtain construction of conservation storage dams upon payment of the additional cost. It can also borrow the additional amount at the 2½ or 3% rate.

Most state officials say, however, that competition from this source is slight because Corps projects are relatively few in number and usually involve projects far too expensive for communities to take on.

Should the program get off the ground, it would provide a large bundle of design and construction contracts. So far the State Water Board has ruled eligible for state loans four projects having a total estimated cost of $46.8 million. The state would lend $11 million of that amount.

Another 20 projects, having a total estimated construction cost of $211.5 million, are expected to be submitted to the board for approval. The state's loan share would be $45.3 million.

Combined, those approved and those expected to be reviewed, would provide 24 projects, having a total estimated construction cost of $258.3 million.

Inland Waterway to Start On Florida's Gulf Coast

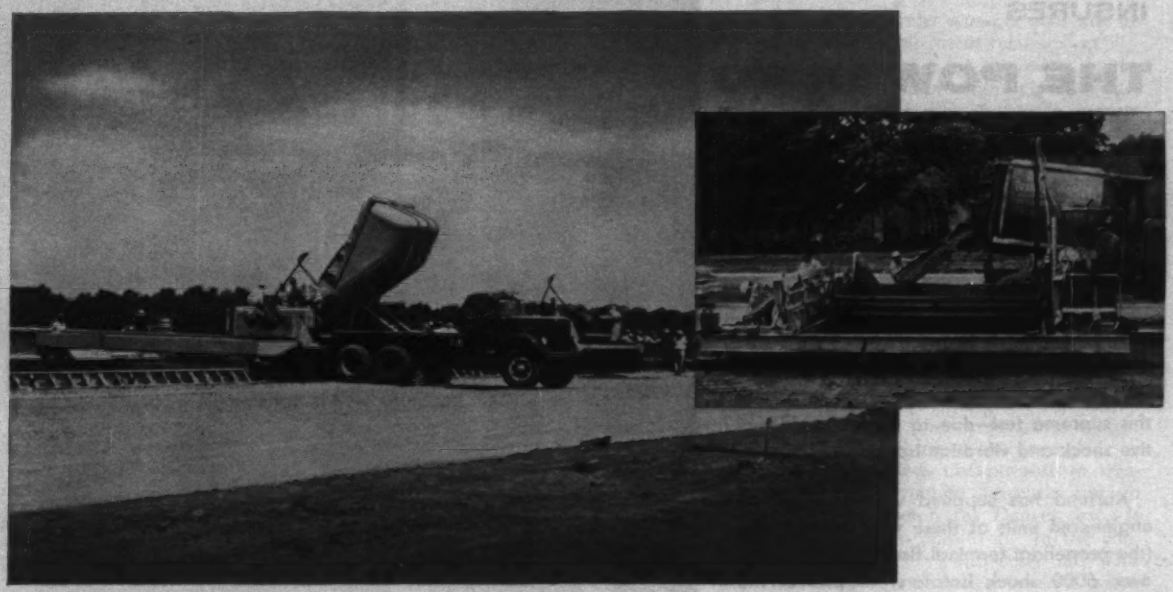
Construction will get under way shortly on Florida's West Coast Intercoastal Waterway. The 148-mile Gulf Coast channel will run from Fort Myers to Tarpon Springs. Congress has provided $2 million of the $7.5 million required for the job.

Bids have been accepted on the initial contract for dredging the 100-ft-wide channel from the Caloosahatchee River at Fort Myers, to Charlotte Harbor.

At Venice, below Sarasota, there is local objection to the project. Since there are no offshore islands directly opposite the city the proposed route of the waterway runs inland, behind the city. Objectors say that Venice will become an "island" and that the county will have to finance the bridges over the inland waterway.

The city wants the waterway to run out into the open waters of the Gulf of Mexico, where there is no protection for small boats. Initial contract, expected to be awarded on May 1, will involve dredging of nearly 4 million cu yd.

HOW TO CUT COSTS EVERY TIME YOU PAVE WITH CONCRETE



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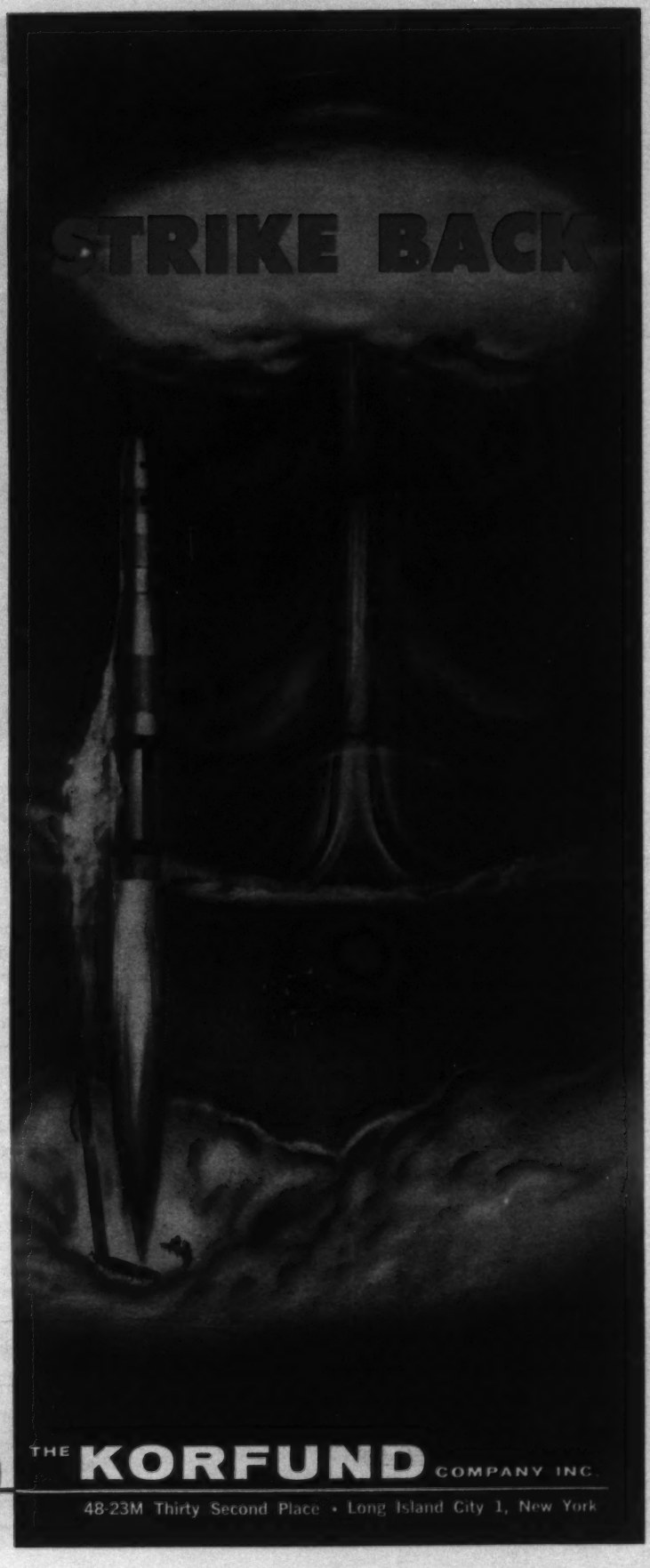

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- fans and air handling units
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For information on the control of shock and vibration at missile hard sites, write for Bulletin No. 72.

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New Clues in Picketing Puzzle

- **Court rules plumbers fabrication clause led to secondary boycott on Detroit Edison job.**
- **Decision helps explain the situs picketing issue and may reduce product boycott fears.**

Those advocating congressional approval of the construction industry situs picketing bill may find aid and comfort in a recent decision by the Circuit Court of Appeals for the District of Columbia. The case concerns union efforts to enforce a plumbers fabrication clause that curbs the freedom of contractors in the selection of materials.

The court drew heavily on the controversial Denver Building Trades case to make this ruling: A strike to protest installation of material forbidden by contract is an unlawful secondary boycott.

The circumstances under which the case arose and the logic used by the court indicate that there may be little substance to current claims that the Thompson situs picketing bill would legalize product boycotting.

It also appears that judicial extension of the Landrum-Griffin hot-cargo exemption to off-site work would have little legal significance, provided the Thompson bill does not disturb the application of the Denver case to labor disputes affecting employers who are neither contractors, subcontractors or joint venturers at a construction site.

The Landrum-Griffin law legalizes restrictive clauses relating to the contracting or subcontracting of work to be done at the site. Some people, including plumbers president Peter T. Schoemann, contend the exemption is broad enough to cover the type of clause at issue in this court case.

The dispute goes back to a clause in the national labor agreement between the plumbers union, United Engineers & Constructors, Inc., and other companies. The clause requires that pipe of 2½-in. diameter or less be cut, bent and welded on the job site. It allows pipe of greater diameter to be fabricated off the site, provided the work is done in a shop organized by the plumbers.

In this case, the court was concerned with the interests of three management groups: Detroit Edison Co., the owner of a generating plant under construction in River Rouge, Mich.; United Engineers, the contractor; and Westinghouse Electric Corp., supplier of the turbine and piping that caused the dispute.

Edison, which retained control over the purchase of material, ordered piping and a turbine as a single package from Westinghouse, which is not organized by the plumbers. Plumbers hired by United Engineers refused to install the Westinghouse material on the grounds its use violated the fabrication clause. They also refused to refer workers to other Edison projects under contract to United Engineers, unless Edison followed the fabrication clause.

The National Labor Relations Board ruled that the union engaged in a secondary boycott in both instances.

The appellate court agreed that the strike was a secondary boycott, but ruled that refusal to refer workers was not a boycott, even though the union had the exclusive right of referral.

The court's reasoning was this:

- The plumbers were employees of United Engineers, not of Westinghouse or Edison, which were secondary or neutral parties. Targets of the union's refusal to install the Westinghouse material, however, were Edison and Westinghouse. One of the union's objects was to force United Engineers to quit doing business with Edison and, thus, to force Edison to quit doing business with Westinghouse.
- As long as this was one of the objects of the strike, the Denver case applies, making this type of economic pressure an unlawful secondary boycott. (Under the Denver case, any strike that seeks, as one of its objects, to force one person to quit doing business with another is an unlawful boycott.)
- Because of the Denver case, it is immaterial that the union was also protesting what it called violation of the fabrication clause by the primary employer, United Engineers. The right to engage in a primary dispute does not excuse a secondary boycott.
- The NLRB erred, however, in calling refusal to refer workers under an exclusive hiring arrangement a "strike." One of the elements of a secondary boycott under the law is "concerted refusal in the course of employment." The right to refer workers does not establish an employment relationship.

The court did not consider the legality of the fabrication clause under the Landrum-Griffin hot-cargo exemption for two reasons: The case arose before the Landrum-Griffin law was passed; and the legality of the clause has no bearing on the boycott issue.

The Edison case suggests, however, that the controversy over the legality of the fabrication clause, or of any similar restriction on the use of materials, is a tempest in a teapot if the Thompson bill means what it says.

For the case indicates that the clause, even if valid, would still be unenforceable under the Thompson bill, which is limited to economic pressures against employers working at the same site.

That bill does not purport to legalize all construction boycotts nor to destroy completely the Denver case. It applies only to employers "in the construction industry" and deals only with the interests of such employers when they are "jointly engaged" as contractors, subcontractors or joint ventures at the "site" of construction.

Its language does not apply to the Edison type of dispute, in which neutral, off-site employers, including product suppliers, would still have the protection of the Denver case.

This helps to explain the situs picketing support that has come from the Administration, which has leaned heavily on the on-site limitations of the bill. And it shows how the hot-cargo exemption and the situs picketing bill are dovetailed by the on-site limitation.

In fact, House members of the committee that wrote the Landrum-Griffin law said the cargo exemption does not apply to supplies or products delivered to a construction site. And that conclusion appears to be unaffected by the Thompson bill when read in the light of the Edison case.

The House members were then primarily concerned with legalization of labor contract clauses that prohibit subcontracting of on-site work to nonunion contractors. Although such clauses have now been legalized, it is difficult to enforce them because of the Denver case and the restrictions of the Moore Drydock case.

The Thompson bill would cut into the Denver ruling enough to remove that roadblock, but not enough to upset the Edison ruling. But critics say the bill is too vague to be trusted.

Wages Follow Last Year's Pace

Present indications are that past habits plus deferred increases will push wages up 15 cents more this year

The construction industry is entering the most active part of its 1960 collective bargaining season with little change from the settlement patterns established in previous years.

Current settlements are turning in such familiar scores as 20 cents for one year, 30 cents for two years, 55 cents for three years. New wage increases effective this year are running between five and 20 cents an hour, with 10 and 15 cents still the most popular.

Results so far indicate the AFL-CIO's prediction for 1960 may not be far from wrong.

The federation now says that bargaining in 1960 "will, in general, probably see wage increases at least equal to and most likely somewhat larger than in 1959, normally accompanied by liberalizations in fringe benefits." It calls the prediction "a candid estimate of how bargaining is shaping up in 1960."

The benchmark established in the construction industry last year was an average wage increase of 4.7%, or 15.6 cents an hour, according to the U.S. Department of Labor. Average increases by trades ranged from 14.2 to 18.2 cents an hour, putting the level of construction wages at $3.54 an hour, the department says.

Increases of this size have been given a certain amount of perpetual motion by the pattern of long-term contracts that has evolved in recent years.

Previously negotiated labor agreements running for more than one year, for example, will give some 458,000 construction workers fixed and automatic wage increases this year. Two-thirds of these will get increases of 15 cents an hour, or more. And over a fifth of them will receive wage boosts of 21 cents or more.

Judged in the light of this background, current settlements appear to be running true to form. Among them are these:

• Roofers in Colorado and Wyoming settled a five-day strike with a two-year contract that gives them a 15-cent increase now and 10 cents more next April. New scale is $2.55.

• Painters in Chicago have settled for a two-year contract giving them a 15-cent boost now, making their new rate $3.75, plus an additional 7½ cents in wages and five more cents for pensions next April. Old fringes of 15 cents for health and welfare and 10 cents for pensions continue.

• Pipefitters in the Gulf Coast area of Texas have accepted an immediate wage boost of 12½ cents under a two-year contract that provides for a 1961 increase of 12½ cents that can be taken either in wages or pension contribution.

• Electrical workers in 21 Tennessee, Alabama and Georgia counties are expected to ratify a new two-year contract for a 25-cent increase, payable in annual installments of 15 and 10 cents. Old scale was $3.50.

• Laborers in Rhode Island have signed a three-year agreement with New England Cement Pipe Corp. for a total wage increase of 55 cents.

• Operating engineers in 13 Indiana counties have settled a strike that began last October with a new two-year contract that grants wage boosts ranging from 5 to 18 cents an hour over the contract term.

• In Buffalo, N. Y., the electrical workers have agreed to a May 1 increase of 10 cents in wages and 10 cents for health and welfare in a one-year contract.

Meanwhile, across the border, electrical workers in three Ontario counties have settled for a 40-cent wage increase in a two-year contract. And construction glassworkers in the painters union in Hamilton have accepted a 30-cent increase over two years

Labor in Brief . . .

• **Top-level talks**—President Eisenhower and AFL-CIO President George Meany will meet next Tuesday in an effort to complete plans for a top-level, labor-management conference on common problems. Early June is the target date for the first meeting.

• **Back to work**—Carpenters working for Merritt-Chapman & Scott called off a six-day strike at the Niagara, N. Y., power project last week after negotiating a 20-point program of safety procedures. Union originally claimed buses furnished by the company to haul workers into the gorge were "unsafe."

• **Wage differential**—Root of a plumbers strike on a hospital job in an Ontario town is a clause in a local labor contract requiring outside contractors to pay local plumbers a 25-cent hourly wage differential. Contractor called the clause an illegal restraint of trade and refused to comply.

• **Medical care**—The AFL-CIO has condemned as wasteful and extravagant a Republican sponsored proposal to provide medical care for the aged under a plan in which commercial insurance companies would participate. It calls, instead, for use of the Social Security system under the Forand bill.

• **Minimum wage**—The Administrations last week came out against legislation to raise the minimum wage to $1.25 an hour and to extend the law's coverage to another eight million workers. Commerce Secretary Frederick H. Mueller said the Democratic proposal would set off another round of inflationary wage increases.

• **Hands off**—The Indiana Society of Professional Engineers has gone on record against union solicitation for acceptance of union-endorsed products. A union label is not a guarantee of product quality or performance, says President D. H. Lessing, Sr., and there is "no reason for professional engineers to look with favor on this solicitation."

• **Carpenters strike**—Members of the Associated General Contractors of Cape Cod, Mass., were struck by carpenters on 24 projects this month. Carpenters seek a 50-cent hourly wage increase, plus fringe benefits. Present scale is $2.95.

• **Jurisdictional dispute**—Six Titan missile sites southeast of Denver, Colo., were hit this month by a jurisdictional dispute between carpenters and iron workers over the placing of 300-lb bolts in the top of antenna silos. Morrison-Knudsen Co., prime contractor, filed unfair labor practice charges against the carpenters.

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1 Place a dab of Brixment mortar and a dab of 50-50 cement-and-lime mortar on a brick or concrete block. Wait a minute, then feel each mortar.

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Water retention is the ability of a mortar to retain its moisture longer, and hence its plasticity, when spread out on porous brick or block.

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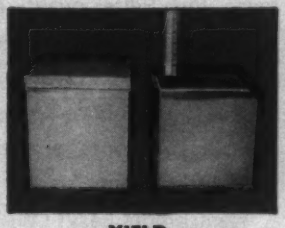
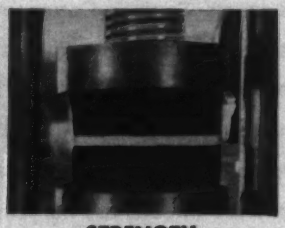


YIELD

BOND



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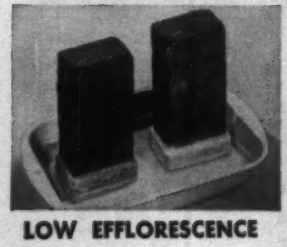

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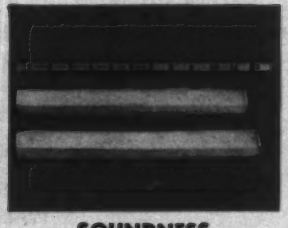
DURABILITY



SOUNDNESS

Nixon Committee Changes Plans

Richard Gray successfully urges moderation and the need to tackle racial discrimination at the pre-job level

Richard Gray, former head of the AFL-CIO Building and Construction Trades Department, has been brought in as an unpaid consultant to the President's Committee on Government Contracts. His assignment: To help work out a program to end racial discrimination on federal jobs.

Mr. Gray is urging moderation in approaching the problem until he has had a chance to study the matter. He has already prevailed upon the committee, headed by Vice President Nixon, to abandon for now its plan to have contractors across the country report monthly their hirings, firings, promotions and demotions by racial breakdowns.

The committee adopted its plan (ENR Mar. 24, p. 330) after the General Services Administration announced its intention to put such a ruling into effect for contractors on all federal building projects. The GSA's particular aim was to eliminate racial barriers in the hiring of electrical workers for two District of Columbia jobs.

GSA decided to hold up issuing the blanket regulation after Mr. Gray interceded at a meeting April 8 with GSA chief Franklin Floete and committee officials.

The heat will continue to be put on the contractors on the District of Columbia projects, however, and they will be required to fill out the monthly forms plus their future construction schedules for the two projects.

Mr. Gray does not attempt to hide the fact that Negroes face a hiring problem in some construction trades.

"The Negroes do have a grievance," Mr. Gray says. "There has been discrimination among some of the building trades." But he seeks to dispel the idea that discrimination is such a deep-rooted problem that it can't eventually be solved. He notes that considerable progress has been made in the past few years in hiring Negroes, particularly in the laborers and carpenters unions.

And he feels that progress is bound to be made in the next few years. He points to Labor Secretary James Mitchell's figures showing that the need for construction workers is going to increase greatly in the next decade, with shortages likely.

"Either more Negroes will have to be hired or the construction trades will have to face the fact that a lot of non-unionized workers will be brought in to fill the vacancies," Mr. Gray observes.

He feels that the biggest and most essential need right now is to increase the education and skills of young Negroes to meet the increasing technical demands on today's construction workers. In this connection, Mr. Gray notes that many unions now require a high school degree or its equivalent for membership. He points particularly to the need for high skill among electrical workers.

Mr. Gray cautions that any hiring program that brought in persons who don't possess the necessary qualifications could pull down the level of skills and training "built up at a big price over the years."

"Is it better to do this," he asks, "or is it better to try to start an anti-discrimination program off right now by increasing the education and training of Negroes to fit them for the big number of jobs that are going to be available?"

Senate Refuses to Revive The McClellan Committee

The U.S. Senate last week clipped the wings of Sen. John L. McClellan (D., Ark.).

It transferred the records and powers of the Senate Select Committee, which Senator McClellan has headed for three years, to the Senate's Government Operations Committee.

Although Senator McClellan is also chairman of this committee, he has been given a limited appropriation of $75,000 and only 10 months in which to salvage what he can from the work of the Select Committee.

By Senate inaction, the Select Committee died a natural death March 31.

For several weeks, Senator McClellan tried unsuccessfully to keep the Select Committee alive. But his efforts coincided with the civil rights debate in which he participated. Said one senator "It is passing strange that senators who last year were deeply interested in union members having the right to vote in union elections should be trying to prevent Negro citizens from voting in state and national elections."

Under the Senate resolution, the Select Committee powers that were transferred to the Government Operations Committee will die Jan. 31, 1961.

OFFICIAL PROPOSALS

Bids: May 24, 1960.

City Public Safety Building
Rochester-Monroe County
Civic Center

Notice is hereby given that sealed proposals for the City Public Safety Building, for the Rochester-Monroe County Civic Center will be received by the Rochester-Monroe Civic Center Commission at Room 36 in the City Hall until 11:00 o'clock A.M., Eastern Daylight Time on May 24, 1960, at which place and hour they will be publicly opened and read aloud.

The proposals shall be for furnishing all labor, materials, insurance, bonds, equipment, facilities, transportation and services necessary for and reasonably incidental to the completion of all work for the above project in accordance with the Drawings, Specifications and other Contract Documents prepared by Bohacket and Flynn, Architects.

The work is divided into the following separate contracts, each to include portions of the complete work, as follows:

General Construction
Heating, Ventilating & Air-Conditioning Work
Electrical Work
Plumbing Work
Vertical Transportation Work (Elevator and Escalator Work)

These plans, specifications and other contract documents may be examined and copies thereof may be obtained at Room 36, in the City Hall, Rochester, New York. One copy of the said documents may be obtained upon payment of One Hundred Dollars ($100.) deposit. Any person, firm or corporation submitting a bid to the Rochester-Monroe Civic Center Commission on this project and returning such copy in good condition within thirty (30) calendar days following the opening of the Proposals will be refunded One Hundred Dollars ($100.00). Reimbursement of Fifty Dollars ($50.00) will be made to any person, firm or corporation not submitting a bid to the Rochester-Monroe Civic Center Commission on this project and returning other copies of the plans and specifications in good condition within thirty (30) calendar days following the opening of Proposals.

The City of Rochester and County of Monroe reserve the right to reject any or all Proposals and to waive informalities, should their best interest thereby be promoted.

Proposals shall be made on the form provided in the Contract Documents, and each proposal shall be accompanied by a certified check made payable to the Rochester-Monroe Civic Center Commission, in an amount not less than five per cent (5%) of the total amount of the proposal, conditioned that the bidder will execute the Contract and deliver the required insurance and Performance Bond for the proposed work within ten (10) calendar days after the date of written notice that his proposal has been accepted.

For proposals with total amounts in excess of $200,000.00 bid bond in the amount of five per cent (5%) of the amount of the proposal, in proper form, executed by a surety company acceptable to the Rochester-Monroe Civic Center Commission, will be accepted in lieu of the aforesaid certified check.

The work involved in this project is not financed or aided by any Federal or State agency.

A bidder may not withdraw his proposal within forty-five (45) calendar days after the opening of proposals, but may withdraw his proposal at any time prior to the scheduled time for the opening of proposals.

A meeting of prospective bidders and the Architects for explanation of drawings and specifications, will be held at 10:00 A.M., Eastern Daylight Time, Wednesday, May 11, 1960, in the City Council Chambers, City Hall, Rochester, New York. Questions desired to be answered at this meeting shall be submitted in writing to the Architects, Bahacket and Flynn, 311 Alexander Street, Rochester 4, New York, on or before May 9, 1960.

KENNETH E. PUNNETT
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City of Rochester, New York

OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $2.40 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.
SEND COPY TO: Official Proposal Division, Engineering News-Record Class. Adv. Div., P. O. Box 12, N. Y. 36, N. Y.

Bids: May 12, 1960.

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, Canal Law and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A. M., advanced standard time, which is nine-thirty o'clock A. M., eastern standard time, on the 12th day of May 1960, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, G. L. NICKERSON, District Engineer, 353 Broadway, Albany 1, New York						
Rensselaer (Rte. 154)	R.C. 60-54	Spring Ave.: Troy-Poestenkill, S.H. 571	0.35	Asph. Conc.=0.30 Mi. Misc. Work=0.05 Mi.	$2,800 Plans $5	$51,000
DISTRICT No. 2, L. KETCHUM, District Engineer, 109 No. Genesee Street, Utica 1, New York						
Herkimer	M 60-4	Washington St.' Bridge (E-34) over Erie Canal, at the Village of Herkimer	....	Clean. & Paint. Bridge	$200 Plans $10	3,400
DISTRICT No. 3, E. E. TOWLSON, District Engineer, 333 E. Washington Street, Syracuse, New York						
Cortland (Rte. 281)	FARC 60-50	Homer-Preble, S.H. FASH 46-3 Project F-215(7)	2.65	Asphalt Concrete, Type 1A	$6,000 Plans $5	104,000
Cortland, Onondaga, Oswego, & Seneca	R.C. 60-41	12 Various State Highways in District 3 on Routes 3, 5, 11A, 41, 89, 104, 221	37.77	Subsealing Cem. Conc. Pavt.	$16,000 Plans $5	290,000
Oswego (Rte. 57)	R.C. 60-49	Fulton-Three Rivers, Pt. 1, S.H. 5250	2.24	Asphalt Concrete, Type 1A	$7,200 Plans $5	133,000
Wayne (Rte. 104)	FARC 60-58	Alton-Wolcott, Pt. 1, S.H. 1516; Alton-Wolcott, Pt. 2, S.H. 8005; Wolcott-Red Creek, S.H. 5290 Project F-362(12); F-346(10)	10.95	Asphalt Concrete, Type 1A	$20,000 Plans $5	370,000
DISTRICT No. 4, B. F. PERRY, District Engineer, Barge Canal Terminal, Rochester 1, New York						
Monroe (Int. Tour. Rte. 490)	FITS 60-9	Int. Rte. Conn. 580, S.H. FIC 58-2 Rochester City: Eastern Expressway, Pts. 2 & 3 Project I-490-2(16)	2.49 (3.43 Acc.)	Traffic Signs and Delineators	$3,300 Plans $5	60,000
Monroe (Rte. 104)	FARC 60-38	Rochester-Webster, Pt. 1, S.H. 98; Rochester-Webster, Pt. 2, S.H. 99; Rochester-Webster, Pt. 3, S.H. 100 Project F-362(11)	3.45	Asph. Conc.=2.29 Mi.; Misc. Work=1.16 Mi.	$39,000 Plans $5	703,000
Monroe (Rte. 33)	FARC 60-53	Buffalo, Pt. 5, S.H. 634 Project F-96(10)	0.06	Asph. Conc., Type 2B=0.05 Mi.; Misc. Work=0.01 Mi.; Widen. Existing Ribbed Arch Bridge 3 Spans Total 161'	$2,400 Plans $5	43,000
Orleans (Rte. 63)	FARC 60-52	Yates-Lyndonville-Ridgeway, S.H. 581 Project S-407(2)	3.24	Asphalt Concrete	$12,000 Plans $5	217,000
DISTRICT No. 5, E. G. H. YOUNGMANN, District Engineer, State Office Building, 65 Court Street, Buffalo, New York						
Cattaraugus (Rte. 18)	R.C. 60-44	Bradford-Carrollton, Pt. 2, S.H. 8018A	0.17	Rehabilitating Through Truss Bridge 7 Spans—893.6'	$14,000 Plans $5	255,000
Erie (Rte. 5)	FARC 60-62	Lake Shore-Lackawanna City, S.H. 5019 Athol Springs-Walden Cliffs, S.H. 5407 Project U-750(18)	1.36 (1.62 Acc.)	9" Cem. Conc. Pavt. 2 @ 24 & Var.=1.21 Mi.; Asph. Conc.=0.09 Mi.; Misc. Work=0.06 Mi.; Access—9" Cem. Conc. Pavt. 2 @ 24 & Var.=0.09 Mi.; Asph. Conc.=0.93 Mi.; Hg. Sep. Comp. Pl. Girder 3 Spans Total 332'	$82,000 Plans $5	1,598,000
DISTRICT No. 6, WILLIAM J. DENNIS, District Engineer, State Office Building, 30 West Main Street Hornell, New York						
Allegany (Rte. 244)	R.C. 60-55	Phillips Creek-Alfred, S.H. 8375	1.90	Asphalt Concrete	$6,600 Plans $5	122,000
Tioga (Rte. 17)	FARC 60-56	Waverly-Owego, Pt. 3, S.H. 5257 Project F-498(6)	3.03	Asphalt Concrete	$14,000 Plans $5	235,000
DISTRICT No. 7, R. W. SWEET, District Engineer, 444 Van Duzee Street, Watertown, New York						
Lewis (Rte. 26)	FARC 60-30	Lowville Village, S.H. 5309 Project F-330(8)	0.91	Asph. Conc. Type 1A=0.71 Mi. Misc. Work=0.20 Mi.	$23,000 Plans $5	425,000
DISTRICT No. 8, K. G. RAUER, District Engineer, Pleasant Valley Road, Poughkeepsie, New York						
Rockland & Westchester	T.C. 60-1	Broadway-Hastings-Dobbs Ferry-Mt. Pleasant-Tarrytown-North Tarrytown, S.H. 9206; White Plains-Eastview Road, S.H. 5571; Spring Valley-Knapps Corners, S.H. 689; Knapps Corners-Nyack, S.H. 5178	....	Traffic Signals	$2,500 Plans $5	45,000
Ulster (Rte. 44)	R.C. 60-46	Mid-Hudson Bridge, West Approach, S.H. 9108	0.77	Galv. Beam Type Guide Railing	$750 Plans $5	14,000
Westchester (Rte. 9A)	R.C. 60-45	Unionville-McKeels Corners, S.H. 52; McKeels Corners-Briarcliff Manor, S.H. 53; Briarcliff Manor-Echo Lake, S.H. 54; Briarcliff-Crotonville, Pt. 1, S H 1922	4.52	Galv. Beam Type Guide Railing	$3,000 Plans $5	53,000
DISTRICT No. 9, J. C FREDERICK, District Engineer, 71 Frederick Street, Binghamton, New York						
Chenango (Rte. 80)	R.C. 60-59	New Berlin-Columbus, S.H. 704	4.09	Asphalt Concrete	$11,000 Plans $5	199,000
Otsego (Rte. 166)	FATS 60-7	Milford-Roseboom, S.H. 8226; Cherry Valley-Roseboom, S.H. 786; East Springfield-Cherry Valley, S.H. 934; Cherry Valley-Sharon Springs, Sharon Springs-Canajoharie Pt. 1, S.H. 8064; Cherry Valley-Sprout Brook, Pt. 1A, S.H. FASH 59-6 Project F-385(4)	6.60	Traffic Signs	$350 Plans $5	6,800
DISTRICT No. 10, AUSTIN M. SARR, District Engineer, 325 W. Main Street, Babylon, L. I., New York						
Kings, Nassau & Queens (Rtes. 27 & 27A)	FABLP 60-1 FAVWE 60-1	Belt Parkway (Gowanus Parkway to Whitestone Parkway); Van Wyck Expressway (Belt Parkway to Grand Central Parkway) Project U-777(6); U-1085(17)	34.92	Aluminum Mall Barrier, Fencing, Guide Railing; Misc. Work	$120,000 Plans $5	2,170,000
Nassau	NSP 60-2	Northern State Parkway	5.53	Roadside Development	$9,200 Plans $5	167,000
Queens (Int. Tour. Rte. 495)	FIHHE 60-3 FAHHE 60-4	Int. Rte. Conn. 514 (Horace Harding Expressway) Section 2; Horace Harding Expressway Section 2 (Contract 5) Project I-495-1(35); U-862(24)	2.72	Roadside Development	$10,000 Plans $5	172,000
Queens (Int. Tour. Rte. 495)	FIHHE 60-5	Int. Rte. Conn. 514-Horace Harding Expressway (Contract 8) (Queens Blvd. to Francis Lewis Blvd.) Project I-495-1(39)	5.30	Clean Up and Miscellaneous Work	$30,000 Plans $5	534,000

(Continued on following page)

OFFICIAL PROPOSALS

(Continued from preceding page)

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage), Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "Information for Bidders" in the Public Works Specifications, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as Amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bond shall conform to the provisions of the Highway Laws, as set forth in "Information for Bidders".

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPT. OF PUBLIC WORKS

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OFFICIAL PROPOSALS

Bids: May 13, 1960

Pittsfield, Massachusetts
Sewer Commission

INVITATION FOR BIDS

Sealed bids for constructing sewage works improvements will be received by the Sewer Commission in the District Court Room of the Berkshire County Court House, Wendell Avenue, Pittsfield, Massachusetts, until 2 PM EDST, May 13, 1960, and at that time and place publicly opened and read. The work is to be done under two contracts and is described as follows:

CONTRACT NO. 1 MAIN INTERCEPTING SEWER
includes the furnishing and installation of approximately 500 ft of 10-in VC, 600 ft of 48-in RC, and 11,000 ft of 72-in RC pipe together with an access road, access structures, and inverted siphons, and other related work and appurtenances.

CONTRACT NO. 2 EASTERN INTERCEPTING SEWER
includes the furnishing and installation of approximately 1,670 ft of 6-in and 8-in VC pipe, 6,130 ft of 15-in, 18-in and 24-in RC pipe and 23,660 ft of 30-in, 36-in, 42-in and 48-in RC pipe together with manhole structures, cast iron pipe, inverted siphons, a prestressed pipe brook crossing and a sewage meter station and other related work and appurtenances.

All materials will be furnished by the Contractor.

Separate contracts covering the above work are being advertised simultaneously with the provision that bidders may submit proposals for either or both of these contracts, or as provided in the proposal form for Contract No. 2, a bidder may submit a price on the basis of receiving the award for both contracts.

Plans, specifications and other contract documents may be secured at the office of the Commissioner of Public Works or at the office of the Consulting Engineers, Camp, Dresser & McKee, 18 Tremont Street, Boston 8, Massachusetts, upon the deposit of $25.00 for each contract. Said deposits will be refunded if the documents are returned in good condition within ten days after bids are received.

The proposal for Contract No. 1 and the proposal for Contract No. 2 must each be accompanied by a separate certified check in the amount of $50,000 payable to the City of Pittsfield, Massachusetts. This check will be subject to the conditions provided for in the "Information for Bidders." All checks, except those of the three lowest responsible and eligible bidders will be returned within five days, Saturdays, Sundays and holidays excluded, after the opening of proposals. All bid deposits will be returned on the execution of the contract, or if no award is made, within thirty days after opening of bids, unless forfeited under the conditions stipulated in the Information for Bidders.

No bidder may withdraw his bid for a period of thirty (30) days after the date set for the opening thereof.

The minimum wage rates to be paid by the Contractor on this work shall be as determined by the Massachusetts Department of Labor and Industries. A copy of the schedule of wage rates is included in the contract documents.

The City reserves the right to award these contracts to separate bidders or to make a combined award. The City also reserves the right to waive any informalities in or to reject any or all proposals, or to accept any bid if deemed to be in the best interests of the City to do so. A proposal which includes for any item a bid which is abnormally low or high may be rejected as unbalanced.

A bond in an amount equal to 100% of the total amount of the bid(s) with a surety company satisfactory to the City of Pittsfield, as surety, will be required for the faithful performance of the contract and the payment for all labor and materials used in the work.

SEWER COMMISSION
PITTSFIELD,
MASSACHUSETTS

OFFICIAL PROPOSALS

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5317) will be received at Vernal, Utah, until 2 p.m., Mountain Standard Time, May 24, 1960 for furnishing labor and materials for earthwork, concrete lining, and structures, Fort Thornburgh Diversion Dam, Stanaker Feeder Canal, and Rock Point Canal extension, Vernal Unit, Utah, Central Utah Project. Location near Vernal, Utah. Principal items are 162,000 cu. yds. excavation; 12,360 cu. yds. riprap and rockfill; 130 cu. yds. concrete in lining; 560 cu. yds. concrete in structures; 24,530 sq. ft. precast-concrete sheet piling; and other work. Completion time 260 days. For particulars, address Bureau of Reclamation, Vernal, Utah; or Building 53, Denver Federal Center, Denver 25, Colorado. Floyd E. Dominy, Commissioner.

U. S. GOVERNMENT

United States Department of Commerce, Bureau of Public Roads, April 8, 1960, Invitations to bid have been issued by the Inter-American Highway Office of the Ministry of Public Works, Republic of Costa Rica, for COSTA RICA PROJECT NO. 9 ON THE INTER-AMERICAN HIGHWAY FROM SAN ISIDRO DEL GENERAL TO THE PANAMA BORDER.

Bids will be opened at 3:00 p.m., May 9, 1960 in the office of the Minister of Public Works, in San Jose, Costa Rica.

The project consists of the construction of 39 bridges and other related work including the construction of approximately 20 kilometers of Special Sub-base.

The work is divided into three parts as follows:

PROJECT 9-A: which includes the construction of 10 bridges and related work.

PROJECT 9-B: which includes the construction of 9 bridges and related work.

PROJECT 9-C: which includes the construction of 20 bridges and related work and the construction of the 20 kilometers of Special Sub-base.

Bids will be accepted on the basis of two alternates and award will be made on the most advantageous combination to the Government of all acceptable bids received. Bidders will be allowed to participate in either or both alternates:

ALTERNATE NO. I:
Separate bids may be submitted for any one or any two of the three projects with the understanding that they may be awarded separately.

ALTERNATE NO. II:
A separate bid may be submitted for all three projects combined.

Bids must be submitted in Spanish which will be the official contract language; an English translation of all provisions and bidding documents will be furnished by the Government but this translation will have no official status. Standard Specifications and bridge plans will be in English only.

Bids will be accepted only from Costa Rican or United States Contractors who have an acceptable record of performance in highway and or bridge construction in Costa Rica or the United States.

Plans, specifications, special provisions and forms may be examined at the Inter-American Highway Office (Direccion de la Carretera Interamericana), 4th floor, Rex Building, San Jose, Costa Rica or in the Inter-American Highway Office, Bureau of Public Roads, Room G-13C, General Services Bldg., Washington 25, D. C.

Plans, specifications, special provisions and forms may be obtained only from the Inter-American Highway Office (Direccion de la Carretera Interamericana) in San Jose, upon the deposit of $100.00 for each complete set for Project 9; a deposit of $50.00 will be required for each complete set for anyone of Projects 9-A, 9-B and 9-C. Bidders will be refunded 80% of this amount upon the return of the plans and standard specifications in good condition during the following 30 days after official award of contract.

The most important quantities of work are:

Item name	Unit	Project 9-A	Project 9-B	Project 9-C
Excavation for structures (bridges)	Cu. Yds.	14,000	13,000	15,600
Structural steel piles, furnished	Lin. Ft.	.....	3,600	.....
Precast concrete piles, furnished	Lin. Ft.	.....	.....	18,600
Structural steel piles, driven	Each	.....	84	.....
Precast concrete piles, driven	Each	.....	.....	313
Class "A" concrete	Cu. Yds.	6,700	6,600	9,500
Reinforcing steel	Lb.	971,000	1,016,000	1,527,000
Structural steel, erected only	Lb.	1,305,000	2,435,000	1,770,000
Special sub-base	Cu. Mts.	700	900	72,000

OFFICIAL PROPOSALS

Bids: April 28, 1960.

St. Lawrence Power Project

POWER AUTHORITY OF THE STATE OF NEW YORK

ADVERTISEMENT FOR PROPOSALS FOR THE CONSTRUCTION OF CONCESSION BUILDING NEAR MASSENA, ST. LAWRENCE COUNTY, NEW YORK

SPECIFICATION NO. 409.7
ST. LAWRENCE CONTRACT NO. 56

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the construction of the Concession Building, near Massena, St. Lawrence County, New York, until 10:30 A.M. Eastern Daylight Saving Time on the 28th day of April, 1960, at the Authority's Office, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, at which time and place the proposals will be publicly opened and read aloud.

The work consists of construction of a 43 foot by 23 foot concrete block (3 sides) and stone faced building containing a lobby, utility room and toilets. Also included is the construction of a complete well system for a water supply, a complete sewage system consisting of an ejector pit, sump pit, septic tank, dosing tank and drainage field and a complete electrical and telephone system including a transformer vault and other appurtenances.

The work shall be completed on or before September 30, 1960.

Plans, Specifications and Proposal Forms for the work may be obtained from the Power Authority of the State of New York, 18th floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, upon application and prepayment of a fee of Ten Dollars ($10.00) per initial set of contract documents, and Five Dollars ($5.00) per set for additional sets, no part of which will be refunded. Plans, Specifications and Proposal Forms for the work will be on file in the Authority's Office and in the offices of the Supervising Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and may be inspected by prospective bidders during office hours.

Bids must be made and returned in accordance with instructions contained in the Information for Bidders. Guarantee will be required with each bid in an amount not less than 20 percent of the gross sum bid.

The right is reserved to reject any or all bids.

W. S. Chapin
General Manager

Bids: May 5, 1960

Soil Explorations and Foundation Investigations

NOTICE TO CONTRACTORS

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 a.m. Advanced Eastern Standard Time on May 5, 1960, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y. for:

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON INTERSTATE ROUTE CONNECTION 540-1-1, ROUTE 9W TO TROY-MENANDS BRIDGE INTERCHANGE AREA, NEW PROJECT NUMBER 1-787-3(6)147, ITEM 35B, ALBANY COUNTY, WHICH CONSTITUTES CONTRACT SPEC. NO. FA-SM-155.

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, N. Y.
(b) Mr. G. L. Nickerson, District Engineer, New York State Department of Public Works, 353 Broadway, Albany, New York.
(c) Mr. William Mende, Principal Building Construction Engineer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50 percent of deposit.

The Engineer's Estimate of cost for this work is $31,625.00.

Proposal for this contract must be submitted in separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $2,000.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders".

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPERINTENDENT OF PUBLIC WORKS

Bids: See Advertisement

Building Finishes and Test Piles

THE PORT OF NEW YORK AUTHORITY

Sealed proposals for the following work will be received at the Office of the Chief Engineer, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on date indicated, at which time said proposals will be opened and read in Room 1108.

Contract BP-190.00—Brooklyn-Port Authority Piers—Pier 6—Building Finishes—Deposit $50.00 per set of documents—Bids will be received until 2:30 P.M. on Tuesday, May 17, 1960.

Contract BP-502.285—Brooklyn-Port Authority Piers—Test Piles at Existing Pier 26—No deposit required—Bids will be received until 2:30 P.M. on Tuesday, May 10, 1960.

Contract documents may be seen at the Office of the Assistant Chief Engineer for Design, Room 1115, 111 Eighth Avenue, New York 11, N. Y. Documents will be furnished upon receipt of the above deposit (each set including one copy of the Contract Drawings) for not more than three sets to any one company. Additional sets will be furnished upon payment of an amount for each set equal to the deposit indicated above, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract directly to the Authority will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
S. Sloan Colt, Chairman

New York, April 21, 1960

Bids: May 10, 1960

The Hydro-Electric Power Commission of Ontario

ST. LAWRENCE POWER PROJECT
SHORELINE IMPROVEMENTS—1960
VICINITY OF INGLESIDE

SEALED TENDERS, in quadruplicate, addressed to the undersigned, 620 University Avenue, Toronto 2, Ontario, and clearly marked

"TENDER FOR ST. LAWRENCE POWER PROJECT
SHORELINE IMPROVEMENTS—1960
VICINITY OF INGLESIDE"

will be received up to 4.30 o'clock p.m., Eastern Daylight Time, on

TUESDAY, MAY 10, 1960.

The work consists of clearing and grubbing the work areas, the excavation of approximately 290,000 cubic yards of materials, depositing and grading same in designated fill areas, and to perform such other incidental work described in the Commission's tendering documents C-1089-60. This work shall commence within fifteen calendar days after the date of receipt of notice to proceed and shall be completed July 1, 1961.

Copies of the tendering documents may be obtained on or after Monday, April 11, 1960, at the office of the Director of Supply, 620 University Avenue, Toronto 2, Ontario, on payment of twenty-five dollars ($25.00) for each set. This charge will not be refunded.

Tendering documents may be inspected at the above address and at the offices of the following: the Commission's Field Office, Cornwall, Ontario; Power Authority of the State of New York, Coliseum Tower, 10 Columbus Circle, New York 19, New York; and Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts.

Each tender must be accompanied by a security deposit in the form stated in the tendering documents in the amount of 10 per cent of the first five hundred thousand dollars ($500,000.00) and 5 per cent of the excess over five hundred thousand dollars. Provision for the return of this deposit appears in the tendering documents.

The successful tenderer may be required to furnish a performance bond in the form approved by the Commission and issued by a bonding company licensed as such in the Province of Ontario and acceptable to the Commission for 100 per cent of the total amount of the contract.

The lowest or any tender will not necessarily be accepted.

E. B. EASSON
Secretary

U. S. Government

Department of Commerce, Bureau of Public Roads, April 7, 1960. SEALED BIDS will be received at the office of J. L. Obenschain, Division Engineer, Bureau of Public Roads, Gatlinburg, Tennessee, until 11:00 a.m., E.S.T., MAY 10, 1960, for Project 9A1, Great Smoky Mountains National Park, Swain County, North Carolina. Grading, Draining, Crushed Aggregate Base, Bituminous Surface Treatment and other work from the Park Boundary northwest of Bryson City, 2.550 miles to Canebrake Branch. The approximate quantities of the more important items are: 48 acres Clearing and Grubbing, 582,700 cu. yd. Excavation, 16,000 tons Crushed Aggregate Base, and 4,075 lin. ft. Concrete or Corrugated Metal Culvert Pipe. Minimum wage rates have been fixed as required by law. Plans, specifications and bid forms are available upon request at the address given above or Bureau of Public Roads, 1440 Columbia Pike, Arlington 4, Virginia. F. W. Cron, Regional Engineer.

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Send NEW Ads and Inquiries to Classified Advertising Division of ENGINEERING NEWS-RECORD, P. O. Box 12, N. Y. 36.

• POSITIONS VACANT

Equipment Superintendent: To organize and manage prevention, maintenance and repair of heavy construction equipment. Midwest location. P-4085, Engineering News-Record.

Wanted: Road Grader Operators. We are interested in securing two top road grader operators for work on state highway contracts in North Central Illinois. We will guarantee sufficient work for the entire 1960 season at union wages. Please contact P-4072, Engineering News-Record, as soon as possible.

Estimator—Expanding Philadelphia Contractor has an opening for a man thoroughly experienced in competitive public bidding. Top pay and working conditions. Wingate Construction Company, 34 So. 17th Street, Phila., 3, Penna.

Concrete Paving Superintendent Opening for efficient operator, good organizer, knowledge of equipment and materials essential. Prefer middle age person. Salary commensurate with ability. Condon-Cunningham, Inc., 2324 Shore Crest Drive, Dallas 35, Ph FL 7-6537, Engineering News-Record.

New Opportunity for Highway Engineer to travel and contact highway officers for 35-year-old national supply association. Desire go-getter with CE degree. Experience should include broad knowledge construction and specifications. Committee work with state and national associations of highway officers and ability in public speaking very useful. Chicago headquarters. Salary open. Send full resume. Strictly confidential. P-4164, Engineering News-Record.

Highway Engineer with combined location survey and design experience for permanent position with consulting firm in Southern Connecticut. Position involves supervision of survey parties prior to assuming design duties. P-4216, Engineering News-Record.

Construction Engineer—location NYC. Requires ability to determine and analyze in detail most efficient concrete forming methods in relation to a specific and individual situation. Salary open, permanent position, plenty of opportunity and assistance. In reply, give experience, education, how soon available. P-4219, Engineering News-Record.

Engineer, graduate, civil. Applications accepted until April 22, 1960 for position of Assistant Village Engineer. Municipal experience desirable but not essential. Salary range $525-$580 per month. Apply to F. A. Allbee, Village Administrator. Village of Crystal, 6424 54th Ave. No., Crystal 27, Minn. (Minneapolis).

Civil Engineer graduate with minimum of 2 years experience for permanent position in the Engineering Department of the City of Rock Island. Send resume to Administrative Officer, City of Rock Island, City Hall, Rock Island, Illinois.

• POSITIONS WANTED

Construction manager, age 48. Twenty years supervisory experience in the construction of buildings. Proven record as a producer with top grade contractors. $15,000.00 minimum. PW-4098, Engineering News-Record.

Brick Foreman—Young aggressive Bricklayer & stonemason very cost conscious—1 year college—familiar with all types masonry work—travel no problem. U. S. or foreign. PW-4193, Engineering News-Record.

Construction Manager B.S.C.E. Exp. General Supt. Chf. Eng. Hvy. Const. Roads, Tunnels, Flood Control, Bldgs Will Relocate, Box 48, Clayton, Mo., E. Elswirth.

Chief Engineer—Senior Engineer for Engineering Contractor—or Mining Company. Diversified experience in all phases of mine, mill and refinery plant design and construction. Non ferrous, non metallics and iron ore benefication. Proven competence to organize, direct and control large projects in this specialized area of work. Graduate and registered professional engineer. Age 53. PW-4194, Engineering News-Record.

Proj. Engr.—Mngr. 15 yrs. Indust. and Com. Contrs. Stl., Alum., Glass, and Food Mills, Assemb., Mnfr., Wat. and Sew. Plnts. Pref. Mid West and South. Avail. immed. PW-3891, Engineering News-Record.

• POSITIONS WANTED

Construction Engineer: Reg. P.E. Contractor's design and field engineering work in California desired. Age 38—12 years exp.—Cofferdams—Bridge conc. Frame Bldgs.—Estimating—Shoring — Underpinning—Formwork—falsework—10 years with present employer—Available in June. RE 68430—West Springfield, Mass.

Japan—Civil Engineer, 31, single, experienced in highway and airfield construction, seeks responsible position with American or foreign firm engaged in construction projects. Specialist in soils . . . capable organizer . . . dependable. Top references. PW-4192, Engineering News-Record.

BSCE, three years general field and office experience, desires field position in heavy construction. PW-4195, Engineering News-Record.

Seasoned Administrator and Manager, Age 38. Preconstruction to Liquidation. 15 years of various level experience in field and management. Legal competence. Also thoroughly experienced in real estate, minerals, developments etc. PW-4176, Engineering News-Record.

Construction Mgr.—Gen. Supt. B.S.C.E. Age 43, 20 yrs extensive experience foreign & US all phases construction major Petrochemical, Refinery & Indus. plants. Management responsibility incl. estimating, budgeting, cost control, contract negotiations, labor relations, engineering & purchasing, customer relations & negotiations, financial, office & construction organization & administration. Will consider partnership or part interest. Available relocation immediately. PW-4097, Engineering News-Record.

Architectural Engineer, 38, German license, U. S. citizen, 8 years U. S. Experience in industrial and commercial planning and construction, seeks position overseas, Europe preferred. PW-4112, Eng. News-Record.

Estimator-Superintendent—15 years one Company. Thoroughly qualified to handle complete job bidding stage to completion. Sewage Disposal, Water Treatment, all types Heavy Construction. Will relocate to suit job. Best of references. PW-3913, Engineering News-Record.

Construction Engr.—College grad., married, age 37, 11 years exp. All phases industrial & commercial construction. Prefer Southeast. PW-4135, Engineering News-Record.

Engineer (Geol.)—1½ yrs. in superv. of drilling and boring programs, exploration and prop. eval'n. One yr. in general eng. and blasting techs. Age 26 and avail. for travel. PW-4017, Engineering News-Record.

Executive (Female) Contract Manager, Attorney, Administrator, 15 yrs Legal-Construction Experience, Govt Contracts, Claims, Employed. PW-4033, Engineering News-Record.

Construction Manager, Age 48, with 25 years experience. Desires connection with firm specializing in chemical and industrial type construction. Domestic or foreign. PW-4122, Engineering News-Record.

B.S.C.E. 30, Construction Superintendent desires management potential position with medium Western heavy and highway contractor. Minimum $12,000. PW-4084, Engineering News-Record.

Soils or Geology Engr., 36 age, 11 yrs. exp. in road, dam, and tunnel const. and oil geol. Supervise borings, soil and concrete tests in field and lab. M.S. geol. Locate in East. PW-4203, Engineering News-Record.

• POSITIONS WANTED

Project Manager—General Superintendent— Structural Engineer, not registered. Complete experience over thirty-five years in Estimating, General Superintendent, Job Superintendent, Project Manager and Contractor. Experience ranging on contracts up to Twenty-Five Million Dollars. Foreign or Domestic work acceptable. PW-4215, Engineering News-Record.

Building Construction Supt. or Ass't.—36, 12 years Gen. Contractor, bid to completion up to $100,000.00. Bonded. Fair Spanish. Prefer Latin America for a change. PW-4198, Engineering News-Record.

Sales Engineer: Structural, Rebar and allied products. Direct sales, estimating, engineering and product promotion with architects and engineers. Age 32, willing to relocate and travel. Desire position with aggressive company. PW-4208, Engineering News-Record.

Superintendent finishing million and quarter plant in Middle West for Chicago Contractor desires change. Middle Atlantic States preferred. PW-4226, Engineering News-Record.

Professional Pilot commercial & instrument ratings. Spanish speaking production expeditor. Presently employed Latin-American project nearing completion. Over 10,000 hrs. Perfect safety record. Sober, personable, responsible and dependable family man. References and resume on request. PW-4230, Engineering News-Record.

Project Manager—Superintendent, B.S.C.E. (Structural Engineering) age 30. Eight years with Engineer-Construction Cos. engaged in million dollar industrial & military building. Desire responsible field or office position. Available in May. Contact F. J. Snell, 10312 Fiske Court, Rancho Cordova, Calif.

Experienced Reinforcing Steel Detailer. With Five years experience. Desires to relocate. Prefer Southeastern or Southwestern area. PW-4222, Engineering News-Record.

Contractor's Engineer-Graduate C.E. licensed in N. Y. and N. J. Heavy Construction, Buildings, Missile Projects. Bid to completion experience. Project Manager and Estimating. Wide experience in the preparation and processing of construction claims and arbitration. Presently employed. Can be available in one month. PW-4229, Engineering News-Record.

Sanitary Engr., M.S., P.E., married, 32, experienced in large water pumping and distribution projects, industrial waste investigations, evaluations and treatment facilities. Desire responsible engineering position, administrative or managerial. PW-4200, Engineering News-Record.

Construction Engineer-Superintendent, BSCE, 32. 10 years experience in highway and building construction. 6½ years with general building contractor as Engineer, Supt., and manager. Available now. $8500. PW-4227, Engineering News-Record.

General Manager with take-charge ability, seeking permanent location and alliance with reputable progressive commercial and industrial general contractor. Proven administrator with 30 years versatile construction experience comprising responsibility for estimating, bidding, negotiating, purchasing, cost control and job management. Organizer, coordinator, procedure systems consultant and versed on all phases of construction methods. Age 49, married, salary range 18,000 to 25,000. PW-4214, Engineering News-Record.

(Continued on the following page)

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The Chemstrand Corporation, manufacturers of Acrilan and Chemstrand Nylon® needs engineers, experienced in the following:

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Bachelor's Degree in Engineering (preferably Chemical or Mechanical Specialization) required with a minimum of 3 years' Engineering experience in the above activities related to the design and construction of major chemical and/or synthetic fiber facilities. Occasional travel and temporary duty assignment at project site involved.

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HIGHWAY CONSTRUCTION ENGINEERS

For Work in Southeast Asia

Senior personnel needed to complete technical party. Work involves supervision of construction of highways and bridges in South Vietnam. Duties include instruction of on-the-job trainees. High degree of initiative, judgment and skill in handling human relations required in addition to professional competence. Twenty four months minimum employment agreement. Only those interested in difficult and challenging work should apply.

Minimum 20 years experience desirable on construction supervision of highways. Age limit 65 years. Travel in Bachelor Status only.

For application blank write to

CAPITOL ENGINEERING CORPORATION
CONSULTING ENGINEERS
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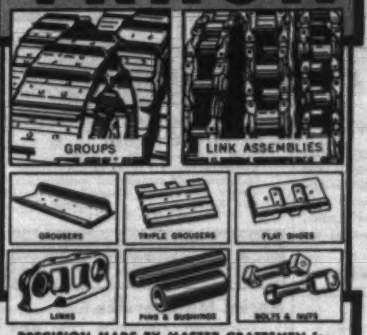

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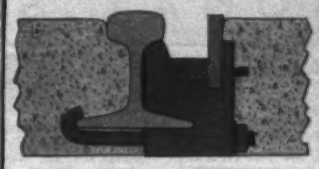

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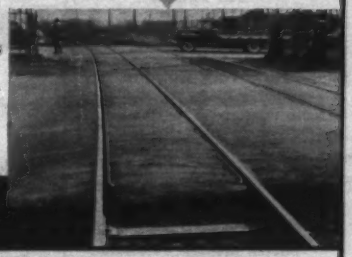

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Now, Before It's Too Late

THE EXPANDED HIGHWAY PROGRAM, despite its essentiality, is under fire from a variety of quarters, including the press, various investigating committees, some governmental agencies and certain individuals in high places. The possibility that this criticism might lead to changes damaging to the public interest cannot be ignored, particularly since the current attacks are probably only a prelude to the full-scale assault, which can be expected next year—the year of decision on federal highway financing.

The highway program—in the minds of those who administer it and many other far-sighted people—is essential to our economic well-being. Benefits will far outweigh its costs, high as they may be. Without the planned highways, our already overloaded cities will be strangled by traffic congestion.

Why, then, all the fuss? There are two basic reasons: One, the program is big. It involves a lot of people and a lot of money. Thus, it offers the kind of target that would normally invite attack. But the second reason is not so normal and far more serious. It arises from the fact that, with few exceptions, the highway interests within the construction industry have fallen down on the job of informing the public—and their elected representatives—of the benefits of improved highway transportation.

The public is indifferent, even apathetic. And, as a highway leader has said, "Public apathy is not very far from active public opposition, especially in matters involving taxation." Without public support, the program is in trouble.

What can be done? For a start there are at least four positive steps:

First, support the efforts of the Better Highways Information Foundation, recently formed by groups representing all kinds of highway interests to carry out a grass-roots program in support of better highways. Its slogan, "Better Highways Now—Save Lives—Save Time—Save Money," might well become a rallying point for all.

Second, all highway officials and administrators must tell the public in simple and accurate terms the benefits that accompany their individual programs of highway improvement. All means—press, radio, TV, conferences, hearings, civic meetings, individual conversations—must be used and used effectively to tell the highway story. Every official must become a promoter, in the best sense of the word, of an adequate highway program.

Third, responsible highway officials must make every effort to lay the facts before their representatives in the Congress of the United States. A close relationship must be developed and maintained with these people, so that they will fully understand the program, its virtues and its problems.

Fourth, every individual who has a stake in the highway program and believes in it, must make himself a promoter of good highways. Talk to your neighbor, your civic club, your bridge or poker club, your church group, your school groups about it—and lay the facts before them.

Without these positive steps—if the public is not informed—there will develop out of ignorance an opposition that could lead to damaging changes in the long-range program that has been planned to cope with the country's highway transportation problem.

Performance of Buildings

THE BUILDING RESEARCH INSTITUTE at its spring meeting did its usual splendid job of shedding light on building problems in need of light (ENR Apr. 14, p. 28). But one conference in particular, on performance of buildings, was outstanding.

At this conference, which lasted two days, owners and their maintenance men had an opportunity to tell designers, builders and manufacturers how materials and equipment have been standing up in service. Owners also had a chance to indicate what improvements should be made.

Such information is extremely difficult to gather. As pointed out during the conference by H. E. Phillips, building engineer for American Telephone & Telegraph Co., "There are many reasons why performance-in-service information does not get back to the place where it can do some good. The producer very naturally wants the world to know about the good points of his product. The architect doesn't want it thought that his choice of products and techniques could stand improvement. The builder wants no possible reflection on the excellence of his work. And the owner, especially if he is renting out space, doesn't want anything published indicating that his building has any faults."

The importance of knowing what can be expected of materials and equipment is pointed up by statistics on cost of maintenance, repair and operation of buildings. AT&T finds that its maintenance and repair costs are about one-sixth as much as it spends on new construction, and its total costs of building operation about the same as that of new construction.

This first conference on performance of buildings was invaluable in calling the attention of designers and manufacturers to some of the more annoying defects in recent buildings. These included too crowded space for mechanical and electrical equipment, piping and valves; sacrifice of practicability for esthetics; and giving up quality for low initial cost. The conference also was helpful in spotlighting materials that have performed satisfactorily, such as brick walls, copper flashing and aluminum or wood windows. The BRI should sponsor more such conferences in the future.

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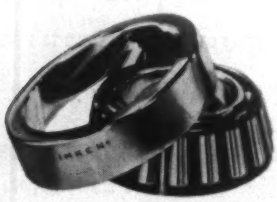

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